

# health equity in nashville

metro nashville-davidson county | 2015

metro nashville public health department



robert wood johnson foundation center for health policy,  
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Health Policy**  
at Meharry Medical College

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# letter of introduction

**For as long as the health profile** of Nashvillians has been captured, the health challenges that have existed in the city have been well chronicled. In the early 1800s, Nashvillians were deemed to have the worst health in America. In fact, a focused effort to improve the health status of Blacks during this period resulted in the founding of the school that would later become Meharry Medical College. Today, 139 years later, Meharry is producing health care professionals to impact underserved populations in Nashville and nationally.

The Metro Nashville and Davidson County Department of Health and the Robert Wood Johnson Foundation Center for Health Policy at Meharry have partnered to produce a Health Equity Report, a compilation of articles that examine various challenges to Nashville's health profile and highlight significant advances toward the elimination of health inequity. Contributors to the report include leading public health professionals and organizations committed to improving the health outcomes of Middle Tennessee residents. While Nashville should proudly boast of the impact the city has had on advancements in health care, the Health Equity Report serves as a reminder of the challenges that continue to result in inequality and the work that remains for those focused on the eradication of health disparities.

## *Defining Health Equity*

Defining health disparities might seem straightforward. However, it is not. Different ethical, philosophical, legal, cultural, and technical perspectives may generate different definitions. For example, one of the primary objectives of the U.S. Department of Health and Human Services Healthy People 2010 goals for the nation was “to eliminate health disparities among different segments of the population (U.S. Department of Health and Human Services, 2000).” A similar goal to “achieve health equity and eliminate health disparities” was proposed by the Health and Human Services Secretary's Advisory Committee (SAC) for Healthy People 2020 (U.S. Department of Health and Human Services, 2011).

Healthy People 2010 defined health disparities as “differences that occur by gender, race or ethnicity, education or income, disability, living in rural localities, or sexual orientation (U.S. Department of Health and Human Services, 2000).” However, the rationale for identifying disparities in relation to these particular population groups was not articulated (Braveman et al., 2011).

The National Institutes of Health defined health disparities as “differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States” (National Institutes of Health, 2010); several other federal agencies have similarly broad definitions. The lack of explicit criteria for identifying disparities, (U.S. Department of Health and Human Services, 2000) and the relatively nonspecific definitions of disparities used by federal agencies (National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2010; National Cancer Institute, 2010) leaves open the question what other groups might also be left out? An additional consideration is whether definitions of health disparities should imply injustice or simply reflect differences in health outcomes (Jones, 2010; Bloche, 2004; Steinbrook, 2004). For example, should sex differences in breast cancer rates be considered a disparity?

While the term “health disparities” is most commonly used in the U.S., “health inequalities” is the preferred term in the United Kingdom, Canada and most of Europe. The word “inequalities” is designated to denote unfairness as opposed to merely “differences” between groups, which could be caused by any number of possible factors. For example, Whitehead defined health inequalities as “differences that are unnecessary, avoidable, and unfair” (Whitehead, 1991). The World Health Organization has a somewhat similar definition. “Health inequities are avoidable inequalities in health between groups of people within countries and between countries. These inequities arise from inequalities within and between societies. Social and economic conditions and their effects on people's lives determine their risk of illness and the actions taken to prevent them becoming ill or treat illness when it occurs.”

# letter of introduction

This definition is widely used internationally, where “health inequalities” are assumed to be socioeconomic differences unless otherwise specified; in the United States, however, “health disparities” more often refer to racial or ethnic differences. However, a large body of research in the U.S. demonstrates that racial disparities in health exist at all levels of socioeconomic status (Crimmins, Hayward, and Seeman, 2004). There are significant disparities in health between both race and socioeconomic status groups (Farmer & Ferraro, 2005). However, while there tends to be a distinction between use of the words “disparities” vs. “inequality,” with one being associated with race and the other associated with socioeconomic status, there is no conceptual reason why this “must” be the case.

Effective public policies require clear and contextually relevant operational definitions to support the development of objectives and specific targets, determine priorities for use of limited resources, and assess progress. The need for clear definitions is particularly compelling given the lack of progress toward reducing racial/ethnic and socioeconomic disparities in medical care (Voelker, 2008) and health (Braveman et al., 2008; Singh and Kogan, 2007; Singh and Siahpush, 2006).

Recognizing the practical implications of a lack of clarity on this critical issue, for the purposes of this report we will adopt the World Health Organization definition of health inequalities. However, we will specifically apply this definition to include avoidable differences in health among racial/ethnic groups.

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# introduction

## Health equity impacts everyone.

Health equity is about more than healthcare; it is creating the conditions and environments that allow everyone in our community the opportunity to attain their highest level of health. The conditions in which we live have a measurable impact on our health, including social, economic, and environmental factors that can either promote or inhibit healthy behaviors and outcomes. These factors are often unequally distributed across society, which put some people at greater risk of poor health than others. The unequal distributions of these conditions can be geographic (where we live and work), economic, or rooted in social and cultural beliefs, and are sometimes the result of public policies that favor some groups over others. These systemic inequities are often hidden, or misinterpreted as behavior choices, and their root causes and impacts require both awareness and action to address.

Equity means justice or fairness, and is an ethical concept. These are general terms that can be interpreted in many different ways, but ultimately are rooted in the varying distribution of social, economic, and political circumstances for different groups of people. Health equity is specifically about the systematic and uneven distribution of factors that contribute to health outcomes, but is often accompanied or impacted by other disadvantages.

Health inequity is different from health inequality: inequity refers to systematic disadvantages for certain groups, where inequality refers simply to differences between groups (Braveman and Gruskin, 2003). Since the terms equity, justice, and fairness are open to interpretation, it is important to define health equity in greater detail so that we can better understand how to promote it.

## Defining Health Equity

There is no single definition of health equity. However, the most widely-used definitions have common elements and complement one another. Some of the common elements across definitions include:

Everyone attaining the highest level of health possible

A focus on factors that determine health: environmental, social, demographic, and economic

The elimination of health disparities between different groups within society

Use of the terms *opportunity* and *potential*

Author	Definition	Source
HealthyPeople 2020	Attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities.	<a href="http://healthequity.sfsu.edu/content/defining-health-equity">http://healthequity.sfsu.edu/content/defining-health-equity</a>
World Health Organization	Equity is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. Health inequities therefore involve more than inequality with respect to health determinants, access to the resources needed to improve and maintain health or health outcomes. They also entail a failure to avoid or overcome inequalities that infringe on fairness and human rights norms.	<a href="http://www.who.int/healthsystems/topics/equity/en/">http://www.who.int/healthsystems/topics/equity/en/</a>
Centers for Disease Control and Prevention	When all people have “the opportunity to ‘attain their full health potential’ and no one is ‘disadvantaged from achieving this potential because of their social position or other socially determined circumstance.’”	<a href="http://www.cdc.gov/socialdeterminants/Definitions.html">http://www.cdc.gov/socialdeterminants/Definitions.html</a>
Dr. Paula Braveman	In operational terms, pursuing equity in health can be defined as striving to eliminate disparities in health between more and less-advantaged social groups, i.e. groups that occupy different positions in a social hierarchy.	Braveman, P.A. (2003). Monitoring equity in health and healthcare: A conceptual framework. <i>Journal of Health, Population, and Nutrition</i> , 21(3), 181-192.
Center for Health Equity and Social Justice, Boston Public Health Commission	Health equity means that everyone has a fair opportunity to live a long, healthy life. It implies that health should not be compromised or disadvantaged because of an individual or population group’s race, ethnicity, gender, income, sexual orientation, neighborhood or other social condition. Achieving health equity requires creating fair opportunities for health and eliminating gaps in health outcomes between different social groups. It also requires that public health professionals look for solutions outside of the health care system, such as in the transportation or housing sectors, to improve the opportunities for health in communities.	<a href="http://www.bphc.org/chesj/about/Pages/WhatisHealthEquityDisparities.aspx">http://www.bphc.org/chesj/about/Pages/WhatisHealthEquityDisparities.aspx</a>
Robert Wood Johnson Foundation	Health equity can be defined as the absence of disadvantage to individuals and communities in health outcomes, access to health care, and quality of health care regardless of one’s race, gender, nationality, age, ethnicity, religion and socioeconomic status.	<a href="http://www.rwjf.org/en/research-publications/find-rwjf-research/2011/03/preface/pursuing-health-equity.html">http://www.rwjf.org/en/research-publications/find-rwjf-research/2011/03/preface/pursuing-health-equity.html</a>
National Association of Chronic Disease Directors	Health equity occurs when all people have the opportunity to be as healthy as possible and no one is limited in achieving good health because of their social position or any other social determinant of health.	<a href="http://www.chronicdisease.org/general/custom.asp?page=HealthEquity">http://www.chronicdisease.org/general/custom.asp?page=HealthEquity</a>
Dr. Camera Jones	Health equity is assurance of the conditions for optimal health for all people. Achieving health equity requires valuing all individuals and populations equally, recognizing and rectifying historical injustices, and addressing contemporary injustices by providing resources according to need. Health and health care disparities will be eliminated when health equity is achieved	<a href="http://www.coloradotrust.org/attachments/0002/0251/issue_focus_whats_in_a_name_.pdf">http://www.coloradotrust.org/attachments/0002/0251/issue_focus_whats_in_a_name_.pdf</a>



## Glossary of Health Equity Terms

Discussions of health equity often use terms that are familiar to those in public health, but may be less familiar to individuals working in other sectors. This section provides an overview of these terms, as defined by the U.S. Centers for Disease Control and Prevention.

**Health:** A state of complete physical, mental, and social well-being and not just the absence of sickness or frailty.

**Health Disparity:** A type of difference in health that is closely linked with social or economic disadvantage. Health disparities negatively affect groups of people who have systematically experienced greater social or economic obstacles to health. These obstacles stem from characteristics historically linked to discrimination or exclusion such as race or ethnicity, religion, socioeconomic status, gender, mental health, sexual orientation, or geographic location. Other characteristics include cognitive, sensory, or physical disability.

**Health Inequality:** Differences, variations, and disparities in the health achievements of individuals and groups of people.

**Health Inequity:** A difference or disparity in health outcomes that is systematic, avoidable, and unjust.

**Individual Risk Factors:** Characteristics of a person that may explain health or behavior. Some examples include a person's age or whether a person smokes.

**Social Determinants of Health:** The complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities. These social structures and economic systems include the social environment, physical environment, health services, and structural and societal factors. Social determinants of health are shaped by the distribution of money, power, and resources throughout local communities, nations, and the world.

## Groups that May Experience Health Inequity

There are groups within our community that, for many reasons, are disadvantaged and may experience health inequities. Some of these groups are:

Children, youth, or the elderly

People with disabilities

Ethnic or racial minorities

People experiencing homelessness

People who speak limited English

Low-income people and families

Religious and faith communities

Women

People who are lesbian, gay, bisexual, or transgender

These and other groups may experience disadvantages because of public policies, deeply-rooted cultural beliefs, physical limitations, geographic isolation, or discrimination by other community members or groups. Whatever the reason, it is important to identify potentially-disadvantaged groups when considering how to both measure and address health inequities.

# The Social-Ecological Model of Health

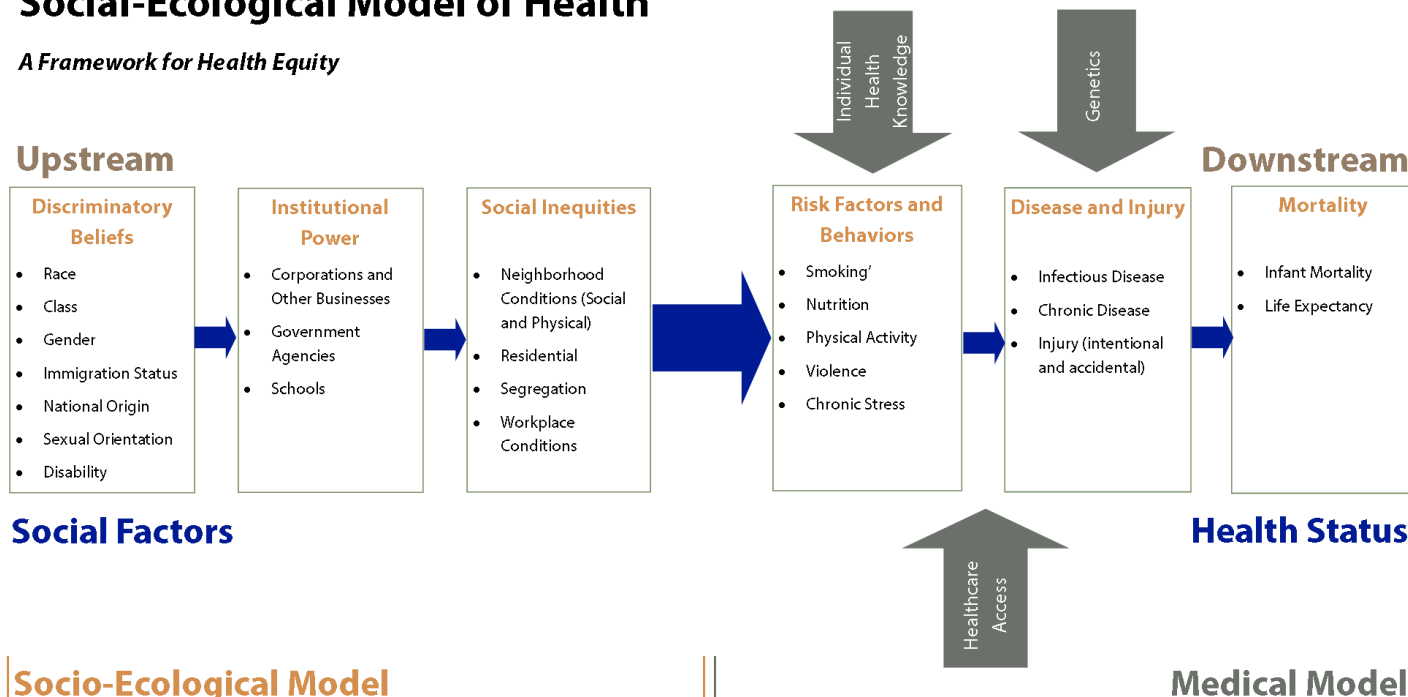
Moving toward health equity requires us to focus on the unequal access to resources and opportunities in our community. Equity is about systematic differences between groups in the conditions that promote health and healthy lifestyles. This requires an examination of the systems that produce these inequities, and not just the health inequities themselves.

The Social-Ecological Model of Health is a useful framework for thinking about health equity. There are a number of variations on the model, but they all have a common purpose: to emphasize the importance of prevention by thinking about the root causes and systems that produce health inequities. The version of the model presented here includes both the “upstream” social factors that cause health inequities, and the “downstream” differences in health status. It also acknowledges the role of genetics, healthcare access, and individual knowledge about health.

This model includes six ecological levels that represent a chain of circumstances that ultimately lead to inequities in health behaviors and health status. The first three are the upstream “socio-ecological” levels, which represent forces beyond the individual that impact health, including 1) discriminatory beliefs, 2) institutional power, and 3) social inequities. The latter half of the model, the downstream “medical model” levels, includes 4) risk factors and behaviors, 5) disease and injury, and 6) mortality.

## Social-Ecological Model of Health

*A Framework for Health Equity*



## Purpose of This Report

The purpose of this report is to build awareness of health equity in Nashville, identify factors that contribute to health inequities, and facilitate the development of recommendations for action to address health equity issues locally. This report is being released prior to the 2015 Healthy Nashville Summit, the focus of which is on health equity. Using this report as a guide, summit attendees will participate in working groups to discuss local health equity issues, identify local health equity indicators that can be tracked over time, and determine specific recommendations for action. This information will be gathered in a supplementary report that will serve as a guide for Nashville's progress in moving toward health equity.

This report presents topics related to health equity in Nashville using the Social-Ecological Model of Health as a guide, and to inform the structure for the report. Each report section represents a level of the Social-Ecological Model, and includes sections that highlight a local program, policy, or identified need related to health equity. Some sections were authored by individuals at the Metro Nashville Public Health Department, while others were contributed by experts from other organizations in the community who are knowledgeable about their respective issues. Thus, this report presents a shared community voice, and represents the collaborative approach that is needed to further health equity in Nashville. Solutions must come from various sectors, including local and state government, non-profits, academia, and community groups. Public health is not simply the domain of the health or healthcare industries, but also of housing, urban planning, education, business, public safety, and numerous others whose work directly impacts the health and well-being of the community.

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# discriminatory beliefs

Civil Rights History in Nashville

The Mayor's Office of New Americans

Metro Nashville Domestic Partner Benefits

Discrimination and Physical Activity

# Civil Rights History in Nashville

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The Civil Rights Movement in Nashville was a response to practices that blatantly discriminated against African Americans. Discrimination at that time was more than blatant – it was legal. By the late 1950's African American Nashvillians began to grow increasingly discontented with their social status, economic immobility, and overall quality of life. The response was a well-strategized offense to the status quo.

The most active groups in Nashville during the Civil Rights Movement, much like elsewhere in the southern United States, were college students and members of the clergy. Young people led nonviolent sit-ins and peaceful marches modeled after the work of Dr. Martin Luther King and the Southern Christian Leadership Conference (SCLC). Reverend James Lawson, a graduate student at American Baptist Theological Seminary, first began holding meetings in 1959 at Clark Memorial United Methodist Church and students from Tennessee State University, Fisk University, and Meharry Medical College attended. In 1960, students held the first sit-ins in an attempt to desegregate lunch counters. They went to stores located in downtown Nashville: Kress, McLellan's and Woolworth's Department stores as well as Cain-Sloan, Harveys, Grant's, Walgreens, and Moon-McGrath drug store (Cass, n.d.).

After two months of escalating tensions, the home of Z. Alexander Looby, a local civil rights attorney, was bombed. A Fisk University student, Diane Nash, and C.T. Vivian, a local minister, led a march to City Hall. There, they confronted Mayor Ben West who agreed to desegregate the city, making Nashville the first southern city to do so (Cass, n.d.). Desegregation of many of the city's stores as well as desegregation of movie theatres, restaurants, and the bus system, which came later, opened a world of possibility to all Nashvillians regardless of color. After the passage of the Civil Rights Act of 1964, the federal mandate making it illegal to discriminate on the basis of race, color, nationality, sex, or religion, inclusion efforts still exist.

Over fifty years after the Civil Rights Movement, Nashville has become home to one of the fastest growing immigrant and refugee populations in the United States (Cornfield, 2013). Between 2010 and 2020, Nashville's white population is expected to grow by 2%, its black population by 13%, and its Hispanic population by 13%. Much like the 1950's and 60's, North Nashville remains home to a large amount of African Americans.

*All of the policies and practices of the city that have occurred over time with little thought to their impact on communities of color, especially in North Nashville, have worked to make health outcomes in these areas substantially worse than others.*

Residents in this area, however, suffer from chronic diseases such as asthma, diabetes, obesity, hypertension, cancer, heart disease, and stroke in disproportionate numbers. Instances of infant mortality rates are higher as well. Community members have identified several underlying reasons for these conditions, including the Civil Rights Movement itself. As more and more businesses became accessible to African-Americans, the patronage of black owned businesses in predominately black neighborhoods decreased.

North Nashville, which was home to several of these businesses, was hard hit. Additionally, construction of Interstate I-40 in 1968 through the middle of Jefferson Street disrupted the community. The steering committee that opposed the construction was not heavily involved in planning for the interstate. Though many of the committee members were white, the majority were black, and they were not given a voice at a time when racial tension in the city had not yet quelled. Many members of the community saw the construction and the ensuing division of North Nashville as a continuation of the discriminatory practices and atmosphere of exclusivity propounded by the city. The construction of I-40 broke up Jefferson Street and made it more difficult for residents to gain access to businesses along the street.

Since the time of the Civil Rights Movement, the growth of the city, policies, and grants have all compounded to displace many African-Americans. One such example is the Federal Housing Act of 1949, which perpetuated the destruction of a major low-income housing facility near the Capitol and relocated residents farther away from downtown in substandard housing. Zoning ordinances have traditionally disfavored communities of color in Nashville as well.

All of the policies and practices of the city that have occurred over time with little thought to their impact on communities of color, especially in North Nashville, have worked to make health outcomes in these areas substantially worse than others.

Nashville has certainly come a long way since students at the surrounding universities and clergy felt compelled to stage sit-ins, marches, and boycotts. It is assuredly not the same city where a bombing would take place or other blatant acts of discrimination. It is, however, a place where health disparities exist among communities of color and health outcomes depend heavily on locale within the city. Though much has changed there is still much to do .

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# The Mayor's Office of New Americans

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The number of foreign-born residents in Nashville has more than doubled over the past decade. Nearly 12% of our population was born outside of the United States, and nearly half of those people are recent immigrants who entered the country since 2000. In fact, in 2012, Nashville had the fastest-growing immigrant population of any American city.

Today Nashville is the proud home of the nation's largest Kurdish population, as well as growing enclaves of immigrants from Somalia, Sudan and all over the world. To Mayor Dean, it is no coincidence that the increase in immigrants and refugees to Nashville has occurred at a time when the city is at its most vibrant.

Under Mayor Dean's leadership, the Mayor's Office of New Americans works to engage immigrants and empower these New Americans to participate in our government and our community. Created by executive order in September 2014, it is one of the first offices of its kind in the South.

The office focuses on four primary objectives: (1) engaging and empowering immigrants to participate in their local government and in their communities; (2) fostering a knowledgeable, safe, and connected community; (3) expanding economic and educational opportunities for New Americans to the benefit of all Nashvillians; and (4) working with community organizations and other Metro departments to empower and support New Americans. The Mayor's Office of New Americans runs a number of initiatives to help meet these goals.

Many of these were created in the wake of the resounding 2009 defeat of English Only. Had it passed, that referendum would have required Metro Government to do business only in English—and it would have created negative legal, political, social and even moral consequences for years to come. Instead, the leaders who came together to defeat that backward-looking proposal are today an integral part of many Mayor's Office of New Americans initiatives.

One such initiative is the Mayor's New Americans Advisory Council (MNAAC), which Mayor Dean created in 2009 to help foster a link between Nashville's New American communities and Metro Government. These efforts help ensure that Nashville is leading the way when it comes to being a welcoming city that respects and honors the differences among us. Comprised of leaders from Nashville's refugee and immigrant communities, MNAAC meets monthly in the Mayor's Office to discuss issues relevant to the New American population and to share ideas with government leaders. Its members have played a key role in developing a number of important Metro efforts to empower New Americans, and they serve as official advisers to the Mayor's Office of New Americans.

*Had it passed, that referendum would have required Metro Government to do business only in English - and it would have created negative legal, political, social, and even more consequences for years to come.*

With the help of his New Americans Advisory Council, Mayor Dean in 2012 launched a free program called MyCity Academy. The first of its kind in the country, this nationally recognized initiative empowers New Americans to understand and participate in Nashville's government.

More than thirty countries have been represented so far among MyCity participants. Over the course of seven months, MyCity participants meet with leaders from Metro departments and tour Metro facilities. In doing so, they gain a better understanding of how their government works and learn how to resolve issues and obtain information. Upon graduation, MyCity participants are able to help their communities understand and access government services. MyCity graduates also have the opportunity to interact with New Americans from other communities through their participation in MyCity Connect.

MyCity Connect is an initiative from the Mayor's Office of New Americans that provides an opportunity for New Americans and more established residents to network and get to know each other while enjoying fun, free activities at some of Nashville's great civic and cultural locations. It is open to MyCity Academy alumni and to the community as a whole.

Additionally, under the leadership of Mayor Dean, Metro Government partnered with U.S. Citizenship and Immigration Services to create Pathway for New Americans, a program that supports immigrants in Nashville who aspire to become U.S. citizens.

Through this historic partnership, which is the third of its kind in the nation, New Americans Corners are located in many of Nashville's libraries and community centers. They are stocked with resources to help would-be citizens prepare for the naturalization interview and test. Additionally, these libraries and community centers provide trained staff members to help provide direction, as well as free classroom space for organizations to use when teaching citizenship and English as a Second Language classes.

Together, these programs, and others like them, form the foundation of the Mayor's Office of New Americans' work to inform and empower Nashville's growing population of immigrants and refugees and to connect them with members of the receiving community. The office also uses social media and electronic newsletters to connect with interested Nashvillians and to keep them updated on its work.

These efforts help ensure that Nashville is leading the way when it comes to being a welcoming city that respects and honors the differences among us.



# Metro Nashville Domestic Partner Benefits

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In June 2014 the Metropolitan Government of Nashville and Davidson County adopted domestic partner health insurance benefits for its government employees after a strong majority of the Council voted for the bill that was signed by Mayor Karl Dean into law. Partner benefits took effect January 2015.

Metro Nashville became the fourth local government in Tennessee to adopt the measure. Collegedale was the first to do so by ordinance followed by Knoxville through an executive order of Mayor Madeline Rogero. The City of Chattanooga also adopted the measure, but it was repealed by the voters in 2014.

Billed in the media as a benefit for government employees in same-sex relationships, the Metro Nashville ordinance (like the ones in other cities) actually applies to unmarried same-sex and different-sex couples. Its value, though, is in protecting same-sex couples who at this time cannot get married in Tennessee or have their out-of-state marriage recognized in Tennessee. Tennessee's marriage case is currently pending before the United States Supreme Court.

It is a broader but important question as to whether a person's ability to obtain health insurance should be tied to being married or in a domestic partnership. Indeed, it is a vital question of justice.

Nevertheless, in the current system most employees and their loved ones face, marriage and lesser forms of relationship recognition are pathways to receiving health insurance coverage for the entire household.

One significant aspect of the campaign to achieve partner benefits for Metro Nashville government employees was hearing the voices of Metro employees themselves. Metro employee Bob Benson commented about the full range of benefits that were lacking prior to passage in a May 20, 2014 piece by WSMV. Speaking about his partner, he noted, "His mother passed away a couple years ago. It was in another state, and instead of taking a bereavement like all the other employees, I had to use vacation time. It's all about being treated like everyone else" (WSMV, 2014).

*Its value, though, is in protecting same-sex couples who at this time cannot get married in Tennessee or have their out-of-state marriage recognized in Tennessee.*

"Being treated like everyone else" sounds like a simple matter, but it is THE question for gay, lesbian, bisexual, and transgender employees. A Human Rights Campaign study last year found that about 53% of gender and sexual minorities are not out, that is, open about their sexual orientation or gender identity at work (Fidas and Cooper, 2014). Partner benefits provide a way for employers to send a strong signal to employees that it is safe to be out at work.

As the number of same-sex couples grows in Tennessee, the need for equal marriage or partner benefits is also growing. Based on the 2010 Census, the Williams Institute at UCLA estimates there are over 10,898 same-sex couples in Tennessee: 2,357 of them are in Davidson County/Metro Nashville (Gates and Cooke, 2011).

Not only is the number of same-sex couples growing, but the LGBT population is one that is increasingly seen as experiencing health disparities. The U.S. Department of Health and Human Services recognizes the provision of partner benefits as one intervention among many that helps bridge the gap (U.S. Department of Health and Human Services, 2015).

A 50-state resolution of the marriage question may make the issue of partner benefits largely moot. It is important to note, though, that the outcome of the case is uncertain. The Supreme Court could rule against marriage equality or delay their ruling. It is also possible that even with a ruling that supports marriage equality, marriage is not the right step for all couples who are living together.

Partner benefits in any of those scenarios help offer a way to cover those who otherwise might be at risk. The passage of the Metro partner benefits ordinance also serves as a lasting testament to the value Nashville places on its employees, a choice the city made before the courts imposed equal marriage and equal benefits upon it and other government employers in Tennessee.

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# Discrimination and Physical Activity

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Obtaining optimum levels of physical activity is a powerful determinant of multiple health outcomes. Yancey et al. (2007) summarize many of these benefits. Physical fitness is an independent protective factor against all-cause and cardiovascular disease mortality (Haapanen-Niemi et al., 2000; Blair et al., 1995) and the metabolic syndrome (Lee et al., 2005; Kriska et al., 2003). Physical activity may also protect mental (Singh-Manoux, Hillsdon, Brunner, and Marmot 2005) and physical agility (Gass and Dawson-Hughes, 2006), elevate mood (Fox, 1999; Wise, Adams-Campbell, Palmer, and Rosenberg (2006) and improve affect and energy (Ekkekakis, Hall, VanLanduyt, and Petruzzello, 2000). Physical activity is important in weight loss, especially for long-term maintenance, (Miller, Koceja, and Hamilton, 1997) and in the prevention of weight gain (Hill, Thompson, and Wyatt; Parsons, Manor, and Power, 2006; Donnelly et al., 2004).

Although physical environments are important in determining access to physical activity, the social experience of discriminatory beliefs leading to ethnic and gender patterning of physical activity must be addressed to increase equity.

People are empowered when they are offered a wide range of physical activity options, and where they can explore themselves in a safe place and find something they are interested in and want to pursue for the rest of their lives. This is especially critical for youth. Acquiring motor skills and activity habits early on makes it easier to learn a new skill in the future, and to persist in maintaining an active lifestyle in adulthood.

Chalabaev, Sarrazin, Fontayne, Boiché, and Clément-Guillotin (2013) provide a comprehensive overview of sex and gender stereotyping in sporting activities. Expressive activities (e.g., dancing, gymnastics) are consistently categorized as feminine, tennis or swimming as neutral, and fighting sports as masculine.

Studies are consistent internationally from the USA (Hardin & Greer, 2009; Metheny, 1965; Riemer & Visio, 2003), Sweden (Koivula, 1995), and France (Fontayne, Sarrazin, & Famose, 2001), and across different ages: from adolescents and college students (Koivula, 1995), to kindergarten children (Riemer & Visio, 2003). This consensus implies that there are highly shared pervasive stereotypes about gender roles and sports in western countries, and that they are internalized early during childhood. Children as young as kindergarten are also treated differently by gender when they participate in the same activities, such as tee ball.

*People are empowered when they are offered a wide range of physical activity options, and where they can explore themselves in a safe place and find something they are interested in and want to pursue for the rest of their lives.*

In addition to stereotyping of the activity itself, there is also stereotyping of the person who participates in the activity. Laura Azzarito (2012) states

*When girls, for instance, perform or engage in particular sports that are viewed as masculine, like American football, they in some way become butch, lesbian, or like men. They occupy spaces that are traditionally occupied by men. The same goes for boys who don't like to play football, who are not aggressive, who don't display a particular behavior that is viewed as masculine, as being aggressive, as being forceful, as being very muscular or big. They become like sissies, like girls. This is what creates homophobia in sports. Homophobia is an ongoing issue in sports and in physical education, and it is a problem especially for young people who do not perform normative gender behaviors in sport.*

In addition to homophobia, the conflict of the culturally expected role of a female as a mother and an athlete were also used to justify exclusion of females in sports. Julia Chase, a pioneering runner who competed in the early 1960's writes:

*You rarely heard about women runners in those days. Women weren't allowed to compete in events with men. And they weren't allowed to enter races longer than 880 yards. If a woman ran too much her uterus would fall out. That was the thinking. You never heard of an actual case, but it was just in the air.*

These dilemmas persist to today. It is not surprising that female participation in physical activity declines from 6th grade to 8th grade, a time when puberty makes sexuality come to the forefront in children's daily lives. The rate of decline tends to be even larger in African-American girls (Whitt-Glover, et al., 2009). In a qualitative study of upper-middle class African-American women and their daughters (Walker, 2012), a participant states "...and then when I became about 7th grade, I started to like, you know, be more girly and I didn't want to play [basketball] anymore."

Similarly, profound racial and ethnic patterning of sports and physical activity participation also exists. Even though some forms of physical activity are associated positively with specific ethnic minorities, for example, track and field, the net effect of funneling ethnic minorities into only certain choices do not empower individuals or communities. In addition, there is a tendency to diminish the value of activities ethnic minorities participate in – for instance, associating proficiency in certain disciplines with brute strength or genetics rather than skill and dedication.

Discriminatory beliefs, in addition to creating a passively experienced social fabric, are also responsible for active exclusion and marginalization of women and ethnic minorities in physical activity.

For example, for South Asian Muslim women in Birmingham (England) who were non-participants in leisure activity, the key issue seemed to relate to (not) feeling comfortable. The pre-requisites were considered to be an absence of racism from users and sensitive staff; beyond this, non-participants wanted to see their own culture and peer group in evidence as well as specific sessions for women only; they did not want to stand out in terms of dress or language. (Long, Hylton, Spracklen, Ratna & Bailey, 2009)

In a previously referenced study by Walker (2012), the African-American women all reported unwritten but strong pressure to alter their naturally curly hair texture to straight, which came at a high price for physical activity participation. Chemical or physical straightening processes have at least some sensitivity to humidity or sweat. "And it's my hair too. Black women have hair. If I just got my hair pressed, I'm not gonna go sweat it right out in a gym today. I gotta let it look right cause come Monday I have a big meeting." Both mothers and daughters named hair as one of the most common barriers for sports participation by African-American women.

When dealing with the issues of discriminatory beliefs and practices, it is important to understand the often invisible dominant culture of whiteness to make progress in improving equity. For example, minority participants may report higher levels of racial tensions and discriminatory actions than white participants and white organizers, who then use their perceptions to justify a lack of action. The pervading culture of whiteness in sport and the benefits of white privilege have become the focus academic studies, some of which are cited by Long et al. (2009). These studies have attempted to:

- recognize the culture of whiteness in sport and physical recreation
- acknowledge white ethnicities and identities
- force a refocusing of race relations in sport away from the black ‘other’ to the dominant and powerful culture of whiteness
- implicate those administering sports in the racial processes so that they become aware of their place in challenging or reinforcing disadvantage.

Hopefully, we can learn from these combined perspectives in order to find roles for all of our community members in advancing physical activity equity.

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# institutional power

The Social Vulnerability Index

Community Themes and Strengths

NashvilleNext: Planning for Health Equity

Measuring the Health Benefits of Walking and Bicycling

Institutional Approaches to Improving Physical Activity

# The Social Vulnerability Index

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Social vulnerability refers to resilience, which is the ability to “bounce back.” Social vulnerability is a measure of how well communities may respond when confronted by external stresses on human health, natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss.

The federal Agency for Toxic Substances and Disease Registry (ATSDR) uses U.S. Census data to calculate the Social Vulnerability Index (SVI). The ATSDR’s Geospatial Research, Analysis & Services Program (GRASP) created SVI as a tool to help public health officials and emergency response planners. SVI can help to identify communities that may need the most support before, during, and after a hazardous event.

The SVI indicates the relative vulnerability of every U.S. Census tract. Census tracts are subdivisions of counties for which the U.S. Census collects statistical data. The SVI tool ranks the tracts on 14 social factors such as unemployment, lack of vehicle access, and crowded housing. The SVI tool groups social factors into 4 related themes. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking. The four themes in the SVI tool are:

- Socioeconomic status - income, poverty, employment, and education,
- Household composition - age, single parenting, and disability,
- Minority status and language - race, ethnicity, and
- English Language Proficiency Housing and transportation - housing structure, crowding, and vehicle access.

Data from the 2010 U.S. Census were used to determine the SVI for the 161 Census tracts in Davidson County. The associated maps display the data at the Census tract level representing small, relatively permanent statistical subdivisions.

Each tract received a SVI ranking for each Census variable and for each of the four themes as shown in Figure 1 plus an overall ranking shown in Figure 2. A higher percentile rank represents greater vulnerability.

Overall, when the four themes were combined, the SVI suggested 53 tracts out of 161 tracts met the criteria to be considered the most vulnerable tracts. Figure 2 shows the overall Social Vulnerability Index in Davidson County. The colors ranking SVI are displayed for the Census tracts. Figure 2 shows the SVI values within the Metro City Council Districts.

*Overall, when the four themes were combined, the SVI suggested 53 tracts out of 161 met the criteria to be considered the most vulnerable.*

Based on socioeconomic status, 48 of 161 tracts in Davidson County had characteristics making them more vulnerable. Household composition status was a vulnerability in 34 of the tracts. Minority status and language domain showed up in 88 tracts. Based on housing and transportation status, 54 tracts may be highly vulnerable. These themes are displayed in Figure 1.

The SVI can be used to help local officials identify communities that may need support in preparing for hazards or recovering from disaster. For example, the SVI can be used to: (1) estimate the amount of needed supplies like food, water, medicine, and bedding; (2) help decide how many emergency personnel are required to assist people; (3) identify areas in need of emergency shelters; or (4) plan the best way to evacuate people, accounting for those who have special needs, such as people without vehicles, the elderly, or people who do not understand English well.

Figure 1. Davidson County Social Vulnerability Themes

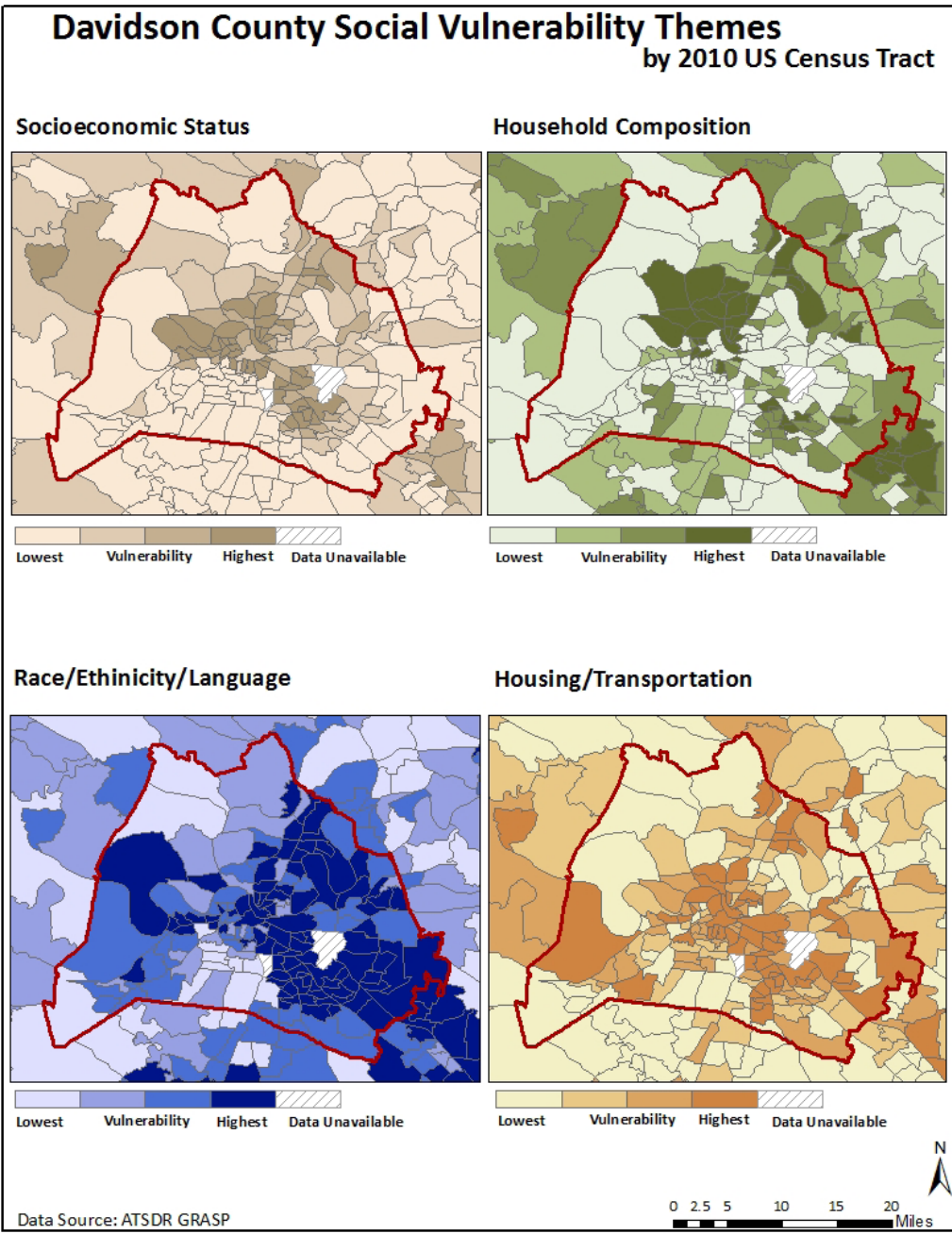
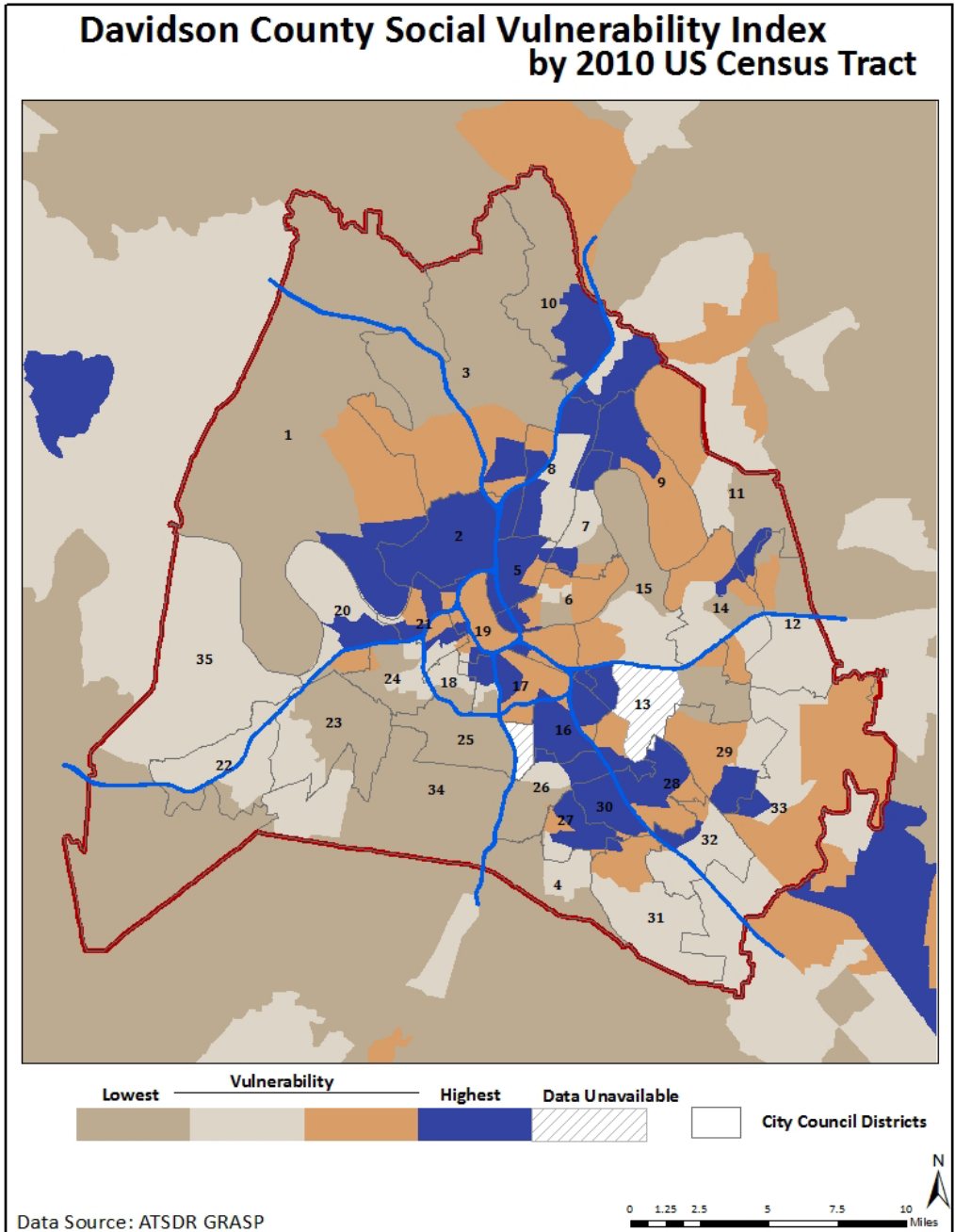


Figure 2. Davidson County Social Vulnerability Index Combined





# Community Themes and Strengths

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In 2013, Nashville used the Mobilizing for Action through Planning and Partnerships (MAPP) community health assessment process as the framework for convening a large variety of organizations, groups, and individuals that comprise the local public health system in order to create and implement a community health improvement plan.

The Community Themes and Strengths (CTS) was one of the five assessments completed to find answers about our community by gathering community thoughts, opinions, concerns, and solutions, as well as feedback about Quality of Life (QoL) and community assets. The following questions directed the assessment:

- What is important to our community?
- How is quality of life perceived in our community?
- What assets do we have that can be used to improve community health?

Recognizing that any single approach could be insufficient in reaching a broad cross-section of such a diverse population, the subcommittee selected the following three methods to answer the assessment questions:

- Electronic Quality of Life Survey
- Community Listening Sessions
- Creation of Asset Maps Using 2-1-1 Data

The electronic Quality of Life survey was created using the MAPP QoL survey as a template. The questions of the survey were clustered around the topics identified through a Technology of Participation® facilitated process. The topics are as follows:

1. Healthy Natural Resources
2. Accessible and Affordable Transportation
3. Meaningful Employment
4. Self-Determination
5. Equal Access to Basic Human Needs
6. Equal Access to Optimal Education
7. Affordable and Safe Housing
8. Physical and Mental Health
9. Connected and Engaged Community
10. Safe Community
11. Recreational Opportunities

*How is quality of life perceived in our community?*

The survey was open to the public for approximately one month. The committee chose to use a convenience sample to collect information from readily-available respondents. Although the committee recognized that the results of this type of sample could not be generalized to the entire population, effort was made to target specific groups that otherwise might have been underrepresented, including those without internet access, with reading limitations, and of low socio-economic status. The survey was open to all Davidson County resident ages 18 years and older. A total of 1,038 surveys were completed.

The community listening sessions were used to gain a more in-depth understanding of the issues that were most important to the community. Listening sessions were also viewed as an effective tool to acquire meaningful input from community members who may have been less likely to respond to the survey, such as those without access to a computer. Four community listening sessions were conducted in three targeted areas of Davidson County: Cayce Homes, Edgehill, and the Nations. In total, 32 Davidson County residents participated in the listening sessions.

The final data collection method used was the creation of asset maps using 2-1-1 data. The 2-1-1 Helpline is an information and referral help line for community services in Middle Tennessee and serves all of Davidson County as well as 56 other regional counties. It is a service provided by United Way of Metropolitan Nashville since 2004. Services are available 7 days a week, 24 hours and staffed by trained specialists at Family & Children's Services. The 2-1-1 Helpline supports a database of more than 10,000 social, educational and health services offered by nonprofits, government and public agencies, community, civic and professional organizations, sliding-scale clinics, and congregations.

With assistance from United Way and the Metropolitan Department of Planning, the CTS committee was able to use the data to create asset maps that showed where gaps in services exist. These asset maps helped to identify potential gaps in service as well as areas that are saturated with providers. Once all of the data were analyzed, the CTS committee members were asked to identify issues, assets, and perceptions that stood out in the data. Many of the issues and perceptions identified from the listening sessions and the survey are areas of equity concern.

Assets	Information from Asset Map	Information from QofL Survey
<b>Greenways and green spaces</b>		<ul style="list-style-type: none"> <li>I have access to parks and greenways where I can be physically active.</li> <li>71% of respondents either Agreed or Strongly Agreed</li> </ul>
<b>Healthcare rich in Nashville</b>	<ul style="list-style-type: none"> <li>Located mostly in urban core, fewer assets in North and West Nashville</li> <li>Structural access does not ensure life circumstances provide access <ul style="list-style-type: none"> <li>Can't miss work</li> <li>Hours of operation</li> </ul> </li> </ul>	
Issues	Information from Listening Sessions	Information from QofL Survey
<b>Lack of adequate recreational opportunities, especially for teens</b>	<ul style="list-style-type: none"> <li>Need more camps that are free for low-income families</li> <li>Create exercise opportunities that are fun and engaging for all ages</li> <li>Also need to do more for Senior Citizens. They often don't have the transportation to get to community centers and are not able to "age in place"</li> </ul>	
<b>Access to mental health / substance abuse resources</b>		<ul style="list-style-type: none"> <li>I have access to high quality mental health services in Davidson County. <ul style="list-style-type: none"> <li>37% of respondents selected Neither Agree nor Disagree</li> </ul> </li> <li>I have access to high quality substance abuse services in Davidson County. <ul style="list-style-type: none"> <li>58% of respondents selected Neither Agree nor Disagree</li> </ul> </li> </ul>
<b>Meaningful employment</b>	<ul style="list-style-type: none"> <li>"We need more jobs in our area. Any kind of job."</li> <li>"We need access to Wi-Fi so that we can search for jobs."</li> <li>Youth jobs programs so they can be prepared for the real world</li> <li>Need help for people looking for jobs, such as interview training and resume writing</li> </ul>	<ul style="list-style-type: none"> <li>I am able to find employment in my preferred area of interest <ul style="list-style-type: none"> <li>24% of respondents either Disagreed or Strongly Disagreed</li> </ul> </li> <li>There are enough employment opportunities in Davidson County? <ul style="list-style-type: none"> <li>43% of respondents either Disagreed or Strongly Disagreed</li> </ul> </li> </ul>
<b>Access to basic human needs – Access to affordable food</b>	<ul style="list-style-type: none"> <li>Food in low-income areas is more expensive</li> <li>\$3 for a half gallon of milk as opposed to \$1.99 in other areas</li> <li>"We are in a food stamp area"</li> <li>Need better transportation options to access fresh fruits and vegetables</li> <li>Fifty Forward provides transportation to seniors</li> <li>Nashville Mobile Market comes, but their stuff is too expensive</li> </ul>	
<b>Transportation (Public Transit)</b>	<ul style="list-style-type: none"> <li>Needs to lower the cost to ride and add additional routes</li> <li>The bus stop at Martha O'Bryan has been moved</li> <li>Some bus stops are dangerous because they are right on the road</li> <li>Some trips are very long because you have to go downtown first to get a different bus</li> </ul>	<ul style="list-style-type: none"> <li>I have enough access to affordable public transportation options in my neighborhood. <ul style="list-style-type: none"> <li>51% either Disagreed or Strongly Disagreed</li> </ul> </li> <li>I have enough access to affordable public transportation options in Davidson County. <ul style="list-style-type: none"> <li>52 % either Disagreed or Strongly Disagreed</li> </ul> </li> </ul>
<b>Transportation (Walkability)</b>	<ul style="list-style-type: none"> <li>Lack of sidewalks / lack of connectivity</li> <li>"Cars have no regard for kids going to school and seniors crossing street to go to grocery store, the cars almost run them over. People in wheelchairs have gotten hit."</li> </ul>	<ul style="list-style-type: none"> <li>My neighborhood has well lit sidewalks for me to use. <ul style="list-style-type: none"> <li>65% of respondents either Disagreed or Strongly Disagreed</li> </ul> </li> </ul>
<b>Transportation (Bikeability)</b>	<ul style="list-style-type: none"> <li>"Why does the Gulch have bikes and we don't?"</li> <li>Bikes provide additional transportation options to go to work or to the store</li> </ul>	
Perceptions	Information from Listening Sessions	Information from QofL Survey
<b>Inequalities perceived by MDHA residents, specifically residents who are senior citizens</b>	<ul style="list-style-type: none"> <li>"Caucasians moved out but now they are coming back. Eventually, they are going to be coming back into OUR area and there's nothing that we can do about it. Where are we going to go? There aren't any jobs in the area!"</li> <li>Lack of respect for senior citizens.</li> <li>Senior citizens get very little in food stamps, can't afford fruits and vegetables.</li> </ul>	
<b>Communities desire opportunities for inter-generational connectedness</b>	<ul style="list-style-type: none"> <li>Mentoring opportunities</li> <li>Help kids stay out of trouble</li> <li>"Easy for kids to get into trouble, but it's really hard for them to get out of it!"</li> </ul>	
<b>People view Davidson County and their own neighborhood as safe</b>		<ul style="list-style-type: none"> <li>I feel safe in my neighborhood. <ul style="list-style-type: none"> <li>76% of respondents either Agree or Strongly Agree</li> </ul> </li> <li>I feel safe in Davidson County. <ul style="list-style-type: none"> <li>64% of respondents either Agree or Strongly Agree</li> </ul> </li> </ul>

# NashvilleNext: Planning for Health Equity

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Nashville is growing and expects to continue adding people and jobs at a rapid pace. Over the next 25 years, we expect Davidson County to add 186,000 more residents and 326,000 more jobs. NashvilleNext is a coordinated plan which guides future development across the county. NashvilleNext reports on trends shaping Nashville's present and future and provides direction and policy guidance on the physical structure of Davidson County – the things we build, how and where we build them, as well as the places we preserve. The plan is based on four pillars – efficient government, economic prosperity, equity and inclusion, and a healthy environment – and was created through extensive community engagement and collaboration with a diverse set of local stakeholders and experts. Goals and policies expand on the vision to guide decision-making in the future. NashvilleNext concludes with an action plan to begin the work of achieving the public's vision for the future.

Thousands of participants told planners their vision for Nashville's future. Through online surveys, public meetings, open houses, focus groups, and community meetings and events, they shaped and refined NashvilleNext. Their vision for the future has been consistent throughout the process. Nashvillians cherish the diversity of places in Davidson County. They want their neighborhoods to support well-being and community. They want a prosperous community that allows everyone to share in the city's success. NashvilleNext recommends strongly coordinating regulations and resources to achieve this vision. In particular, NashvilleNext seeks to protect Davidson County's remaining natural and rural areas; restore degraded natural features to health; ensure that everyone in the county has access to green places; encourage new development in walkable centers and corridors; de-concentrate poverty by minimizing displacement in redeveloping areas and building new homes in high opportunity areas; and create a high capacity transit network that is competitive with car travel to sustain high ridership.

Throughout the process, NashvilleNext participants were asked demographic information. This allowed the planning team to see who participated, so that gaps in participation could be addressed. Throughout each phase of NashvilleNext, the Community Engagement Committee, staff, and consultants monitored progress in reaching all Nashvillians. As gaps in participation and problems in outreach were identified, this group worked to find new ways of connecting to these communities to bring them into the process.

*Changes are an opportunity to rebuild and reinvent the county in critical places.*

The community has discussed the opportunities and challenges the future brings with increased population; a population that is more diverse in terms of race, ethnicity, age and country of origin; an evolving educational system and economy; and an increasing awareness of the beauty, protection and economic advantages that our open space and natural features provide to our community. Changes are an opportunity to rebuild and reinvent the county in critical places. Doing so will give people more choice in where to live, where to work, and how to get around. Improving access to safe, healthy neighborhoods improves the quality of life for Nashvillians. Including new homes, businesses, and services carefully can sustain and enhance the character of the neighborhoods that Nashvillians cherish.



Nashville’s work to achieve equity and inclusion for all its residents must always remain on the forefront. Disparities persist in access to opportunity, infrastructure, and services. As Nashville thrives, the mandate to ensure that all Nashvillians share in and have meaningful access to the benefits of its growth is even more compelling. Nashville’s strength as a city depends upon shared opportunity and the participation of all community members in decision-making for its future. The Nashville Next process has shown the strength and creativity that voices often not at the table can bring to community decision-making. It has also shown the necessity of evaluating measurable benchmarks to ensure that inequities are not created or perpetuated by policymaking.

Continuing processes like NashvilleNext will ensure that Nashville makes its commitment to equity and inclusion a reality for all Nashvillians, today and tomorrow. The responsibility to ensure that opportunity and inclusion are hallmarks of Nashville’s future does not fall only to its government—although government can and should set the example. We will live up to our ideals only if we engage in deliberate collaborations across Nashville’s many communities to achieve this goal. All sectors of our city—government, business, nonprofits, educational institutions, faith communities, residents and more—must take on this challenge together. In 2040, we will know we have stayed true to our welcoming values if all Nashville’s residents have access to affordable, safe housing; efficient transportation to get to work, school, and all the city has to offer; high-quality public education; and the opportunity and encouragement to participate fully in civic life.

Learn more about NashvilleNext and view the plan at:  
<http://www.nashville.gov/Government/NashvilleNext.aspx>



# Measuring the Health Benefits of Walking and Bicycling

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*About the Nashville Area MPO: The Nashville Area Metropolitan Planning Organization (MPO) is the federally-designated regional transportation planning agency for the seven-county region in and around Nashville, Tennessee. The MPO facilitates strategic planning for the region's multi-modal transportation system by serving as a forum for collaboration among local communities and state leaders to program federal transportation dollars to transportation projects and programs. The mission of the MPO is to positively impact public and environmental health while providing access and mobility for the 1.6 million people who live and work in the region.*

*Success: Policy, Funding, Projects, Research and Forecasting that incorporate health benefits in the transportation planning process.*

## *Transportation and Health*

In the last ten years, increasing childhood and adult obesity rates have brought national attention to the health of people in the United States. Obesity is related to numerous diseases including cancers, diabetes and heart disease, to name a few. There are two factors that are primary contributors to obesity and much of health in general – how much individuals eat and how much they move. During this same timeframe, there has been an increasing interest in having options for transportation. Roadways have reached capacity for the number of vehicles they can accommodate, and as a nation we are running out of both room and money to build more roads. National polls show that people want transportation options such as walking, bicycling and transit.

Given that 50% of the trips taken in cities are three miles or less, walking and bicycling not only provide options that are often faster and cheaper than driving, but also provide opportunities for people to move.

Transportation-related physical activity often happens in small increments – a 10-minute walk to the bus-stop or a walk to get a cup of coffee. These small trips are providing opportunities to get physical activity, even if we are not actively thinking of transportation as ‘exercise.’

In response to worsening public health, decreasing transportation funding, and increased interest in transportation options, communities are building more sidewalks, bikeways and transit systems. Yet, although these facilities are often much less expensive than building new roadways, there is pressure to ‘prove’ that walking, bicycling and transit provide benefits. Fortunately, studies are published almost daily which illustrate that cities with transportation options tend to have stronger economies, fewer traffic-related crashes, and lower rates of obesity.

Who makes decisions to build our roads, sidewalks, bikeways and transit and how are they using data to support transportation investments? In the U.S., Metropolitan Planning Organizations (MPOs) are responsible for long-range planning and near-term prioritizing of transportation projects for urban areas with  $\geq 50,000$  residents. MPOs arose from the Federal Highway Act of 1962, which mandated cities have a continuing, comprehensive, and cooperative planning process to qualify for federal highway funds. MPOs routinely work to improve mobility; however, health is typically a factor only in decisions regarding air quality and road safety. The Nashville Area MPO is among the first to recognize the broader interplay of transportation and public health, including transportation's potential to increase physical activity, access to destination such as food stores and healthcare, and general quality of life.

*Transportation-related physical activity often happens in small increments - a 10-minute walk to the bus-stop or a walk to get a cup of coffee.*

The Nashville region faces several important transportation and health problems. First, Nashville is the most congested city of 1-3 million residents in the U.S., with commuters experiencing 47 hours of annual traffic delay. Second, Tennessee is the least active U.S. state, with 61% of adults failing to meet aerobic physical activity guidelines. Third, Tennessee has many residents who are overweight (3rd among states, 37% of adults) or obese (15th among states, 29% of adults).

### *Shifting Policy and Funding*

The Nashville Area MPO recognized the potential to address these problems by shifting transportation policy focus to public transit, walking, and bicycling. This shift in policy came from strong interest in expanding public transit, increasing active transportation (walking and bicycling) options, and preserving existing roadways and adding sidewalks, bikeways and transit (rather than building new roads). These choices were voiced in a 2010 MPO attitudinal survey (repeated in 2014) among 1,100 randomly-selected households.

Next, the MPO devised a transportation project scoring and selection system in which 60% of the criteria quantified how a future roadway project could increase opportunities for active transportation, improve air quality, reduce crashes, and increase physical activity. The MPO then programmed 70% of its largest revenue source – Surface Transportation Program (STP) funding—and used these dollars to fund Complete Streets projects. Additionally, the MPO reserved 15% of STP funding for a newly-created Active Transportation Program (ATP) for bicycle- and pedestrian-specific infrastructure and programs. By comparison, the United States spends approximately 1-2% of its funding on walking and bicycling facilities, so reserving 15% of the Nashville Area MPO funding, in addition to sidewalks and bikeways built as part of Complete Streets roadway projects, represents a significant commitment to walking and bicycling.

Ten percent of the STP funds were shifted to transit projects, and 5% were dedicated to technology such as electronic signs and pedestrian signals. Innovations in transportation technology provide opportunity to improve transportation efficiency without having to build more roadways.

The policy changes in the MPO's 2035 Regional Transportation Plan resulted in almost 70% of roadway projects including active transportation elements such as sidewalks and bikeways. In the previous 2030 plan, approximately 2% of roadway projects included these elements. Beyond roadway projects, the newly-funded ATP has awarded to date \$13.6 million for active transportation infrastructure and education projects.

### *Prioritizing with Equity*

As part of prioritizing transportation projects that have the potential to improve health, the MPO had a desire to concentrate greenways, bikeways and sidewalks in areas with high rates of health disparities and chronic diseases. This type of health data is often not available for areas smaller than a county, such as street or neighborhood. The MPO therefore decided to use U.S. Census data as a proxy, and looked at areas with higher than average concentrations of low income, poverty and adults over age 65. Overlaying these three area types allowed the MPO to focus on populations that are likely to have higher rates of health disparities, more chronic disease and less car ownership. Providing opportunities for travel that incorporate physical activity addresses not only transportation options for those that depend on transit, walking and bicycling, but also provides opportunities for physical activity for those with chronic diseases. Most chronic diseases have a high rate of positive response to physical activity, which may help to decrease or cure instances of disease.



## Conducting Research

Because the MPO was not able to obtain information on health disparities and chronic disease at a sub-county level, the MPO conducted the Middle Tennessee Transportation and Health Study (MTTHS, n=6,000 households, 11,000+ individuals) to measure transportation behaviors and health attributes. Health questions included height, weight, general diet and health quality, and estimated time spent in physical activity and sitting.

The research conducted during the MTTHS yielded significant data about the transportation and health attributes of households throughout the MPO region. The data were used to create a new map of high health impact areas of the region. Respondents who have high Body Mass Index (BMI), low overall health quality, poor diet and low physical activity were analyzed for common demographic attributes. The results of the analysis showed that people who are classified as low income, unemployed, over age 65 or do not own a car are those that tend to have poorer health. These four attributes were mapped, and areas with three or more of the four attributes are considered priority areas for placement of walking and bicycling facilities. The Health Priority Areas map enables the MPO staff to prioritize transportation projects in areas with potential positive health benefits.

### *Predicting the Health Outcomes of Increased Walking and Bicycling*

The MTTHS data were also used to calibrate the Integrated Transport and Health Impact Modeling (ITHIM) tool, which estimates the population-level health impacts of increased physical activity, reduced air pollution, and altered transportation collision patterns. The tool works by creating a population-level physical activity goal related to transportation trips, and determining the resulting impacts on diseases and deaths related to health outcomes. The MPO choose three transportation-related walking and bicycling physical activity scenarios – 6 minutes a day, 10 minutes a day and 150 minutes a week, respectively. The ITHIM model suggests that changes in physical activity, air-quality, and collisions may contribute to reduced instances of diseases and deaths in the region.

The outcomes for the 10-minute a day scenario illustrate a 31% reduction in population-level cardio vascular disease and an 11% reduction in diabetes (among other health benefits), and an annual healthcare savings of \$200 million a year. Given that the MPO programs approximately \$300 million a year in transportation projects, the health savings monetization helps to illustrate the potential positive healthcare fiscal impacts of using transportation investments to provide increased physical activity opportunities.

*Table 1: Projected Health Outcomes from the Integrated Transport and Health Impact Modeling (ITHIM) Tool In the Moderate Scenario*

Moderate Scenario	Change in Disease Burden	Change in Disability-Adjusted Life Years per year
Cardiovascular Diseases	31.3%	↓ 4,326
Diabetes	11.2%	↓ 1,252
Depression	2.7%	↓ 460
Dementia	3.9%	↓ 879
Breast Cancer	2.8%	↓ 124
Colon Cancer	2.6%	↓ 94
Collisions	13.8%	↑ 1,476

### *Summary*

The Nashville Area MPO has made significant progress in integrating health into the transportation planning process by changing policy and project funding, as well as allocating funding for active transportation research and modeling.

# Institutional Approaches to Improving Physical Activity

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Many public health approaches to physical activity focus on education and motivation of individuals – for example, the Let’s Move campaign (<http://www.letsmove.gov/>). Institutional approaches, however, have a proven role in reducing health inequities in physical activity. By sustaining effective policies and building on areas where there are gaps, we have the opportunity to make healthier lifestyles accessible to all people.

## *Title IX, Success and Challenges*

Title IX is a portion of the United States Education Amendments of 1972, (Public Law No. 92-318, 86 Stat. 235 (June 23, 1972)). The language states (in part) that:

No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance.

There are multiple areas where Title IX has had a profound impact, including opportunities for physical activity for girls and young women. Title IX requires that schools (1) provide male and female students with equal opportunities to play sports, (2) give male and female athletes their fair shares of athletic scholarship dollars, and (3) provide equal benefits and services (such as facilities, coaching, and publicity) to male and female athletes overall (National Women’s Law Center, 2012). Prior to Title IX, in 1972, only 1 in 27 girls played high school sports (<http://www.titleix.info/10-Key-Areas-of-Title-IX/Athletics.aspx>), with over 12 male participants for each female participant (National Women’s Law Center, 2012). In 2013-2014, there were 1.4 male participants in high school sports for every female participant. (The National Federation of State High School Associations, 2015) This is remarkable progress, but fewer girls are participating in sports now than males were in 1972. Substantial work remains to be done.

Prior to Title IX, in 1972, there were virtually no college scholarships for female athletes. Female college athletes received only two percent of overall athletic budgets. In 2010-2011, the female participation rate had risen to six times the level of 1992, and they received 44% of the athletic participation opportunities (National Women’s Law Center, 2012). As with high school, there has been remarkable progress, but work is still needed to achieve complete gender equity.

*By sustaining effective policies and building on areas where there are gaps, we have the opportunity to make healthier lifestyles accessible to all people.*

Research shows that girls who had opportunities to play sports because of Title IX had a 7 percent lower risk of obesity 20 to 25 years later when they were in their late 30s and early 40s (Kaestner & Xu, 2010). Although not designed as such, achieving this degree of effect at a population level would be extremely favorable for any public health intervention.

Federal initiatives have the ability to create a powerful difference in state and local environments across the country. It is necessary to continue to support enforcement of the law and educate citizens about their rights so they can encourage compliance in their communities and continue progress towards equity.

## *Public Health Infrastructure: Closing Gaps to Promote Equity*

In contrast to the commitment to increasing physical activity within the realm of educational policy, public health is decades behind in developing an infrastructure and critical gaps remain.

The Centers for Disease Control and Prevention (CDC) established its first physical activity unit in 1996. This has helped legitimize and in some cases finance parallel infrastructure at the state and local level, with 28 states receiving some funding from CDC (Yancey et al., 2007).

Local level dedicated personnel are not common, with physical activity often grouped with tobacco and nutrition, whose intervention culture and skill sets may not ideally overlap (Yancey et al., 2007). In a 1999 local public health agency infrastructure survey, respondents did not identify a professional classification for exercise scientists or physical activity promotion specialists. In comparison, means of three to five full-time equivalents (FTEs) were reported for positions in nutrition, occupational safety and health, policy analysis, and health education (ibid.). The National Physical Activity Society has worked with the American College of Sports Medicine to develop a certification for Physical Activity in Public Health Specialist (PAPHS). This certification has been available since 2009. In 2013-2014, there were 325 certified professionals (National Physical Activity Society, 2015a). NPAS has also developed a core set of competencies for physical activity professionals that can hopefully be used to develop positions and recruit staff (National Physical Activity Society, 2015b).

Even if agencies were looking forward to increasing their skills and human capital in this area, there is an even more severe shortage of infrastructure in the public health workforce development. Only seven of the 100 members of the Association of Schools and Programs of Public Health currently identify exercise science as a masters' degree concentration, compared with 21 identifying nutrition as a masters' degree concentration (<http://www.asph.org>).

Without a supply of adequately trained practitioners, and a lack of recognition of the distinctive nature of physical activity promotion and the creation of dedicated units, we are losing opportunities to advance equity. We need to create practice informed knowledge of multiple level community oriented intervention, to expand beyond the predominant paradigm of individually oriented interventions.

Another area of opportunity is the development of public health collaborations and agendas in the agencies that control a large share of the leisure-time physical activity resources in most communities – the parks and recreation boards and departments. The British Columbia Parks and Recreation Association offers a good model with their advocacy for renewal and sustainability of infrastructure. A clear benefit for community health has been explicitly detailed as a featured component of their messaging (British Columbia Parks and Recreation Association, 2015). “One government” partnership offers the opportunities to share the benefits, leverage advocacy and dissipate risks associated with high capital investment strategies.

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# social inequities

The Impacts of Neighborhood Conditions on Health

Equitable Housing Development

Housing and HIV Patient Outcomes

STD Spread in Limited Social Networks

Smoke-Free Multi-Unit Housing

Healthcare Access

Assuring Oral Health Equity

Surveying Public Opinion on the Determinants of Health

# The Impacts of Neighborhood Conditions on Health

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Where a person lives is a strong predictor of their health. Neighborhoods may have impacts on health in both short-term and long-term ways. In the short-term, neighborhood environments shape residents' behaviors and attitudes that impact health conditions. Over the long-term, the accumulated stress of living in an environment of poor quality can erode residents' ability to cope with other life demands and make them more vulnerable to disease (Ellen, Mijanovich, and Dillman, 2001). Neighborhoods have both physical characteristics (such as buildings, parks, sidewalks, streets, and trees) and social characteristics (including neighborhood gatherings, homeowner associations, interactions with people on the street or in parks, and feelings of safety and community), all of which can impact health.

A growing number of research studies have begun to explain the relationship between health and our built environment, including housing, sidewalks, parks, transportation infrastructure, the height and density of buildings, and land use, among others. Neighborhood amenities related to diet, exercise, and social life create opportunities for improved health. Shared spaces such as parks, recreation areas, and even streets and sidewalks are places for both exercise and for social interaction that can lead to improved health outcomes. Residents who live near parks have better mental health outcomes (Sturm and Cohen, 2014), and have higher levels of physical activity (Kaczynski and Henderson, 2008). In addition, residents who live near grocery stores and other stores that sell healthy foods tend to have a healthier diet (Larson, Story, and Nelson, 2009).

When neighborhoods are designed with health in mind, they encourage a healthy lifestyle. However, the concentration of conditions such as poverty and environmental pollution, as well as poor access to basic goods and services can create stressful and unhealthy conditions.

When multiple disadvantages exist in a neighborhood, residents are put at much greater risk for poor health outcomes. Unequal access to educational, recreational, and employment opportunities across neighborhoods negatively impacts the health of low-income and minority residents, and ultimately produces or reinforces health inequities (Hannon et al., 2006; Fernandez, 2004; Williams and Collins, 2001; Pastor, 2001).

*Neighborhood conditions, both social and physical, have a significant impact on health.*

Residents who live in low socio-economic status neighborhoods are disproportionately exposed to multiple environmental risk factors, including hazardous waste, air and water pollution, noise and crowding, poor housing quality, poor work environments, and generally poor neighborhood conditions (Evans and Kantrowitz, 2002). Research has shown that a neighborhood's physical and social conditions can determine residents' rates of obesity and diabetes (Ludwig et al., 2011), smoking (Chuang, Cubbin, Ahn, and Winkleby, 2005; Pickett and Pearl, 2001), homicide (Sampson, Raudenbush, and Earls, 1997; Morenoff, Sampson, and Raudenbush, 2001), and premature mortality (Cohen et al., 2003). Further, when families move from high-poverty to low-poverty neighborhoods, they experience less distress and anxiety than those who stay in high-poverty neighborhoods (Leventhal and Brooks-Gunn, 2003).

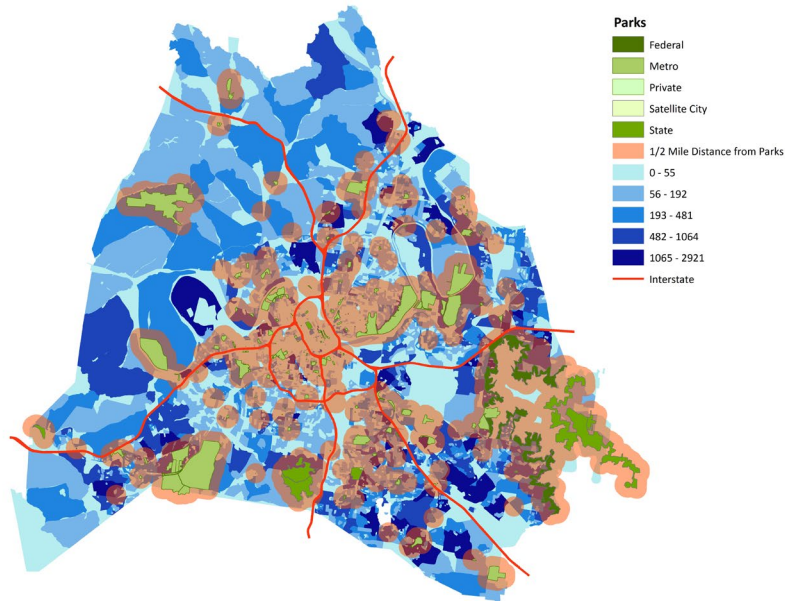
## Neighborhood Conditions in Nashville

In Nashville, both health-related features of the environment and health outcomes vary widely depending on which neighborhood you live in. Only 40% of Davidson County residents live within ½ mile of a park, and parks are not evenly distributed across the county. Only about half of the city’s households live within ¼ mile (easy walking distance) of a public transit stop. Further, less than half of roadways have sidewalks, and less than 10% of roadways have bikelanes (Vick and Thomas-Trudo, 2014). This differential availability and access to health-related infrastructure can contribute to neighborhood differences in health outcomes by making it more difficult to make healthy lifestyle choices.

Health outcomes are also unevenly distributed across the county. In 2012, the zip codes with the highest number of child deaths also have the highest percentage of families living below the poverty level, ranging from 10.3% in 37013 to 39.7% in 37208. For comparison, zip code 37215, which had only between 1 and 5 total child deaths for the 5-year period, had only 1.6% of families living below the poverty level (McKelvey et al., 2014). Avoidable hospitalizations for chronic conditions such as asthma and diabetes are also unevenly distributed across the county. Over half (51%) of all avoidable hospitalizations in the county in 2012 were from just 6 zip codes (37207, 37211, 37013, 37115, 37208, and 37206). During the same year, 27 zip codes each had 1% or less of all avoidable hospitalizations (see *Avoidable Hospitalizations* section in this report).

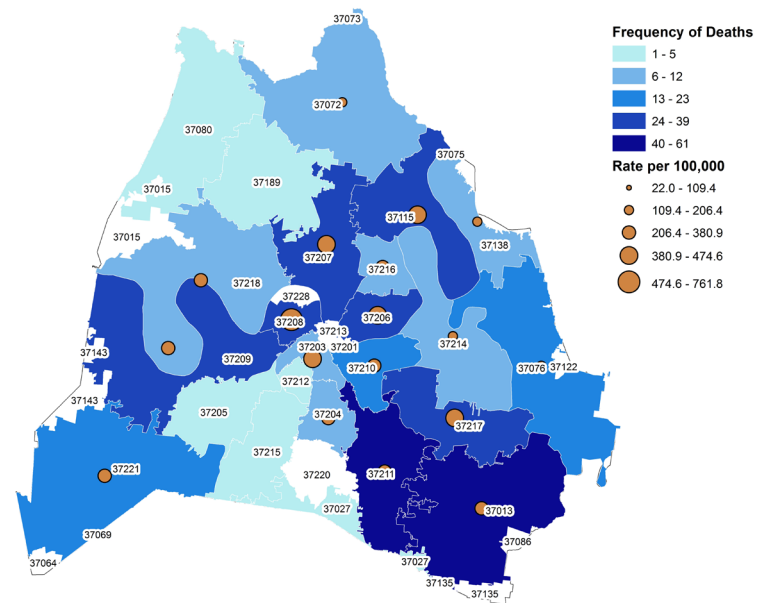
### Access to Parks

1/2 Mile Distance from Parks and Population by 2012 Census Block Groups, Davidson County



### Child Deaths by ZIP Code

Number and Rate per 100,000 in Davidson County 2008-2012



Neighborhood conditions, both social and physical, have a significant impact on health. Local data for Davidson County shows geographic differences in the distribution of both health-related amenities and health outcomes. When developing policies or programs that impact how our environments are developed and reshaped, it is important to consider the potential health impacts of these changes in order to address or prevent health inequities. Tools such as Health Impact Assessment (HIA) are useful for considering and promoting health in decision-making about the built environment. Health, and specifically health equity, should be considered when decisions are made about where to locate health-related amenities and infrastructure, what neighborhoods receive public investment, and who benefits from changes that occur in established neighborhoods. Further, improving conditions in neighborhoods with high rates of poverty is a primary prevention strategy for improving chronic disease outcomes, and ensuring that all residents have the ability to reach their full health potential.

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# Equitable Housing Development

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The link between health and housing affordability is well-established (see Hartig and Lawrence, 2003). When affordable housing is not available in urban areas and near jobs, lower-income residents are often forced to live further from work with longer commutes, which are associated with poor health outcomes (Hoehner et al., 2012; Hansson et al., 2011). When affordable housing is not available across neighborhoods and is concentrated in certain geographic areas, this produces housing segregation which can result in adverse neighborhood conditions that negatively and disproportionately impact the health outcomes of low-income and minority residents (Williams and Collin, 2001; Ross and Mirowski, 2001). Poor housing conditions also impact residents' mental health, particularly low-income families with small children (Evans, Wells, and Moch, 2003). Further, a lack of affordable housing options can lead to housing instability, which can impact school performance. Education is a strong predictor of future health outcomes (Link and Phelan, 1995; Ross and Wu, 1995; Winkleby et al, 1992), and low-income households without access to affordable housing are often forced to move, which can result in school changes that negatively impact school performance (Coulton, Theodos, and Turner 2009; Crowley 2003).

As the cost of housing rises, a lower percentage of residents' income is available for other basic expenditures that impact health such as food and healthcare. In the past three years, 52% of adults in the U.S. have made a sacrifice in order to pay their rent or mortgage, including cutting back on healthcare and healthy foods, or moving to a neighborhood with more crime or worse schools (MacArthur Foundation, 2014).

*The neighborhoods most attractive to new Nashvillians are currently the home to those most in need of affordable housing.*

Increasing housing affordability allows households the flexibility to spend money on these and other necessities that promote health, and to reduce economic stress that negatively impacts residents' physical and mental health.



Given that housing costs are most often residents' greatest living expense, addressing housing affordability is critical. According to the Metropolitan Development and Housing Agency's (MDHA) 2013-2018 Consolidated Plan, at least 15% (over 39,000) of Davidson County households are estimated to have housing concerns, which are overwhelmingly related to affordability. Low-to-moderate income people, people of color, and elderly persons are particularly vulnerable to housing challenges. While there is need for affordable housing for both renters and homeowners across all income levels, the 2013-2018 Consolidated Plan reports the greatest needs are among:

- Renters earning between 0-50% Area Median Income (AMI)
- Non-elderly homeowners earning between 50%-80% AMI
- Elderly homeowners earnings less than 30% AMI
- African American, Hispanic and Asian populations

The need for affordable housing is only expected to increase in the coming years. In order to accommodate expected population growth (estimated at 185,000 people and 76,000 households over the next 25 years), Nashville projects a need for 113,000 new housing units constructed at a rate of about 3,800 units per year. The current and projected market demand is largely driven by the baby-boomer and millennial demographic cohorts, who desire housing in walkable and mixed-used environments. These characteristics are typical of neighborhoods in Nashville's urban core, which have historically been home to households with low-to-moderate incomes, communities of color, and where a majority of homeowners are seniors. In other words, the neighborhoods most attractive to new Nashvillians are currently home to those most in need of affordable housing to retain existing residents.

The process of higher income households moving into lower-income neighborhoods is commonly referred to as gentrification. This process often leads to increases in property values, which can result in the displacement of residents through the erosion of affordable housing in those neighborhoods. Displacement is a key concern. Both homeowners and renters can be displaced as housing markets change: owners of long-term rental units may drastically raise rents or sell their properties, and moderate and fixed-income homeowners may be priced out by increased property taxes. Addressing affordability is imperative to preserving and improving overall quality of life while keeping Nashville competitive for economic growth. Without concrete tools to ensure affordable housing choices throughout all neighborhoods, the city will continue to experience economic segregation and more households will face a staggering cost burden (spending more than 30 percent of their income on housing), displacement and exclusion.

The loss of economically diverse urban neighborhoods due to gentrification will deepen the concentration and suburbanization of poverty, which increases social isolation and reduces access to transportation, employment and necessary services. Resulting in large part from exclusionary zoning policies, American communities remain deeply segregated by race and class. This geographic separation has created neighborhoods racially stratified by opportunity and access to services, quality education, and transit systems. Unsurprisingly, people living in areas of poor access to opportunity experience disproportionately poor outcomes on any number of measures – including academic achievement, exposure to violence, health, and employment. Cities are increasingly recognizing the need to examine and explicitly address the ways that positive and negative effects of revitalization - historically and at present - have not been equitably shared. Ethnic minority and immigrant groups, particularly those of lower income and less education, disproportionately bear the negative effects (Myerson, 2007).

Promoting equitable housing development strategies is an opportunity to improve health equity. As an approach to planning, equitable development is rooted in the values of equity and diversity, driven by an understanding of the positive and negative impacts of revitalization, holistic in strategy and design, informed by a racial equity lens, and enacted through strong community partnerships. Addressing the increasing need for affordable housing will require the city of Nashville as a whole to clarify its values and commitment to equity and diversity. The city will need to demonstrate that commitment through targeted strategy, decision-making, and distribution of resources.

Equitable development is the redevelopment of neighborhoods that improves the quality of life for residents of all incomes. We recommend adopting three components of an equitable development strategy:

1. Adopt an equitable development approach rooted in the values of equity and diversity, driven by an understanding of the positive and negative impacts of revitalization, holistic in strategy and design, informed by a racial equity lens, and enacted through strong community partnerships.
2. Monitor neighborhood demographics and resources including use of a data-informed typology of neighborhood displacement risk, and opportunity mapping to recognize neighborhoods and communities with higher quality of life and opportunities, and develop strategies to increase access to quality services for all Nashvillians.
3. Build an equitable housing development toolkit that includes planning tools and services
  - a. Designed to fund, build, and preserve affordable housing, and retain residents;
  - b. Appropriate to different types of neighborhoods;
  - c. Appropriate for different scales of development.

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# Housing and HIV Patient Outcomes

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When considering the vast array of social and environmental barriers that impact outcomes along the HIV Cascade of Care, including being linked to care within 30 days, being retained in care (2 or more medical visits in a calendar year), and being virally suppressed (having a viral load of less than 200 copies per mL), one factor consistently stands out at each stage: stable housing.

Stable housing, defined as having a consistent or permanent address for 12 or more months, is critical to HIV care. The National HIV/AIDS Strategy urges communities to consider housing as a key outcome for improving all outcomes related to HIV care (Office of National AIDS Policy, 2010). Similarly, the National HIV/AIDS Housing Association notes that housing impacts all aspects of care for HIV positive persons, from getting into care to stigma management to viral suppression (North American Housing and HIV/AIDS Research Summit VI, 2011).

In Nashville, analyses have been conducted on the impact that housing has on the various outcomes on the HIV Care Cascade. For instance, in a recent analysis we explored factors that caused HIV positive persons to fall out of medical care. From the results detailed below in Table 1, one can see that the original date of intake, the income of the consumer, sex (female), age, race (black, other), and incarceration did not significantly change the odds of being lost to care in the model. There was one variable that was significant (defined as having a “Pr > ChiSq” value lower than 0.05): unstable housing. When compared to those who were in stable housing conditions (meaning that they rented or owned their current homes/dwellings), we would expect unstably housed persons to have a 1.41 increase in the log odds of being lost to care if all other variables are held constant. To put this statistic in a more meaningful light, we can look at the odds ratio scores in Table 2. The point estimate for unstable housing is 4.13, meaning that if a person is unstably housed, they are 4.13 times more likely to be lost to care than those who are not, when all other variables remain constant.

The take away from this analysis is that unstable housing plays a very significant role in the engagement and maintenance of individuals in care. Clients who are unstably housed are over 4 times more likely to be lost to care than those individuals who are stably housed. The magnitude of this effect should not be overlooked – typical odds ratio estimates are between 1 and 2 (as seen in many of the variables in Table 2). Unstable housing is a significant variable with a high point estimate, indicating the importance of stable housing in HIV care for keeping individuals linked to and retained in care.

*Clients who are unstably housed are over four times more likely to be lost to care than those individuals who are stably housed.*

In addition to impacting whether a person will enter care, housing status also has an effect on whether or not those people who are already in care maintain low or undetectable viral loads. Drawing on 2012 data for those HIV+ persons who are in care in the Nashville Transitional Grant Area (TGA), a 13 county geographical region covered by the Ryan White Part A program, the viral suppression percentage for those people with stable housing is 78.3%, but for those with unstable housing it is 63.4%. The percentage of those with a suppressed viral load and unstable housing climbs to 71% in 2013 (compared to 80.3% for those with stable housing). The TGA has a good overall viral suppression percentage for those in care, but considering that those without stable housing are much lower on viral suppression outcomes is telling of the impact that housing has on all aspects of HIV care.

Table 1. Analysis of Maximum Likelihood Estimates

Parameter	Estimate	Standard Error	Wald Chi-Square	Pr>ChiSq
<b>Intercept</b>	97.6959	111.6	0.7657	0.3815
<b>Date in Care</b>	-0.0489	0.0555	0.7743	0.3789
<b>Income</b>	0.000212	0.000298	0.5040	0.4777
<b>Female</b>	0.2597	0.5703	0.2073	0.6489
<b>Age</b>	0.00702	0.0232	0.0915	0.7623
<b>Black</b>	0.3476	0.5025	0.4785	0.4891
<b>Other Race</b>	0.5229	1.3153	0.1581	0.6910
<b>Unstable Housing</b>	1.4185	0.6254	5.1444	0.0233
<b>Incarcerated</b>	0.7352	1.2008	0.3748	0.5404

*Estimate: this is the probability a parameter has to influence an outcome. In the above case, unstable housing increases the probability of being lost to care by 1.41, or 141%*

*PR> ChiSQ: This value indicates if a parameter is statistically significant. Anything value in this column lower than 0.05 is significant (meaning it is not likely to have occurred by chance alone).*

Table 2. Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
<b>Date in Care</b>	0.952	0.854	1.062
<b>Income</b>	1.000	1.000	1.001
<b>Female</b>	1.296	0.424	3.964
<b>Age</b>	1.007	0.962	1.054
<b>Black</b>	1.416	0.529	3.791
<b>Other Race</b>	1.687	0.128	22.217
<b>Unstable Housing</b>	4.131	1.213	14.074
<b>Incarcerated</b>	2.086	0.198	21.949

*Point Estimate: Similar to the estimate above, this is the effect of a variable when you assume that everything is constant (doesn't change).*

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# STD Spread in Limited Social Networks

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Sexually transmitted diseases were termed in the 1997 Institute of Medicine report as epidemics of tremendous health and economic consequence in the United States, hidden from the public view. Among the major reasons highlighted was that many Americans are reluctant to address sexual health issues in an open way. Another was that the scope, impact, and consequences of STDs are underrecognized by the public and health care professionals (Institute of Medicine, 1997).

A number of studies have attempted to explain the difference in prevalence of STDs among various population groups. Some indicated that the reasons for the disproportionate incidence of infection in youth include behavioral risk factors, biological susceptibility in young girls, and challenges in accessing health care (Institute of Medicine, 1997). Psychosocial factors that influence STD acquisition among youth include inconsistent and improper condom use (Paz-Balley, Koumans, and Sternberg, 2005), multiple partners, complex romantic/sexual networks (Bearman, Moody, and Stovel, 2004), and poor decision-making skills (Institute of Medicine, 1997). Early initiation of sexual activity has also been shown to correlate with youth STDs (Abma, Martinez, and Copen, 2010; Tu, Batteiger, and Wiehe, 2009).

Sex decision-making skills are taught in sex education. However, the curriculum varies widely by state (Kaiser Family Foundation, 2002). In Tennessee, sex education policy has been based on abstinence only and allowed parents to opt out of sex education classes (Tennessee Code Annotated 49-6-13). We do not have data on the number of school children participating in the “Family Life Education” curriculum, but STD numbers may tell a story on sex decision-making skills among Tennessee school children.

While the U.S. reported a new record low of gonorrhea morbidity and a flat rate of chlamydia among adolescents in 2012, the rates of these two categories of STD have been rising in Tennessee within the same age groups (Tennessee Department of Health, 2012). Additionally, sexual activities among teens remain flat with a tendency to increase rather than decrease according to the Tennessee Youth Risk Behavior Survey (YRBS) (Tennessee Department of Education, 2003, 2009, 2011).

No single factor completely explains the differentials in STD rates, and some of the factors are difficult to isolate in studies (California Department of Public Health, 2008). Led by prejudice and poverty, these factors contribute to limited access to quality care, the stagnation or increase of STDs and the persistence of disparities in prevention.

*No single factor completely explains the differentials in STD rates.*

Most research and program efforts attempting to prevent or slow the spread and complications of STDs have focused on individual behavior change such as condom use, number of partners and getting tested, and biomedical interventions such as screening programs, treatment and vaccines (California Department of Public Health, 2008). The aim of these programs is to intervene in one or more factors of the dynamics in the population-level model of STD transmission.

In that model, factors that determine the rate of population-level spread of disease, called “Reproductive Rate ( $R_0$ )” are: (1) STD transmission efficiency ( $\beta$ ), which is the ease with which people pass and acquire the STD organism; (2) the duration of infectiousness ( $D$ ), which is the length of time people have the infection and can therefore infect others; and (3) the average number of sex partners ( $c$ ). When any of these three factors is zero, STD transmission is stopped and there is no further spread of the infection in the population. If the reproductive rate is one ( $R_0 = 1$ ), transmission rates are steady. If  $R_0$  is less than one, there is a declining incidence, and if  $R_0$  is more than one, the population incidence increases ( $R_0 = \beta Dc$ ) (Potterat, Muth, and Brody, 2000).

The most important risk factor for acquiring an STD is having sex with an infected person. Studies have shown that the risk of having sex with an infected person is determined by the prevalence of infection in one’s sex partner pool, which is in turn, determined by the prevalence in the population from which one chooses partners (U.S. Centers for Disease Control and Prevention, 2007). It has also been shown that partner choices in African-American communities are more segregated than other ethnic groups (Laumann and Youm, 1999). According to the California Department of Health, when prevalence is high, there is more likelihood that any given sex partner is infected. Therefore, the impact of factor  $c$  (or the number of sex partners) on STD transmission can be larger in a sexual network with a high prevalence (California Department of Public Health, 2008). Any individual differences in groups with different baseline prevalence would amplify the population differences over time.

Other societal factors include socioeconomic status (including educational level and income), sexual network structure, and cultural differences that affect partner dynamics and individual behaviors (California Department of Public Health, 2008). The sex ratio of men to women is much lower among African Americans than all other ethnic groups as a result of high mortality rates among black men and high rates of incarceration (Geronimus, Bound, Waidmann, Hillemeier, and Burns, 1996). These communities have also shown high levels of “mixing” between high-risk groups of male partners and low-risk groups of female partners, (Ford, Sohn, and Lepkowski, 2002).

Moreover, a combination of societal factors also contributes to racial/ethnic health disparities in STDs (U.S. Centers for Disease Control and Prevention, 2007). Among them is racism or prejudice in its various forms – institutionalized, personally mediated or internalized. For instance, higher rates of HIV and other STDs for black men who have sex with men (MSM) than for other MSM are well documented. (U.S. Centers for Disease Control and Prevention, 2005). Many black MSM struggle with negative perceptions of themselves because of internalized racism, marginalization, and feelings of isolation from their communities, families, and religious organizations (Wilton, 2009). This oppressive situation may discourage black MSM from seeking care when needed, or getting screened while involved in STD risk behaviors. Residential segregation provides another place for evidence of how racism has contributed to health disparities.

African-Americans are more likely to live in poor areas or seek care in regions where quality levels for all patients are lower (Chandra and Skinner, 2003; Gatebuke, Grimm, and Thomas-Trudo, 2012). In these neighborhood, the lack of economic opportunity due to prejudice against these residents can reinforce personally-mediated racism sustained by receiving less than adequate treatment from professionals. This can lead to internalized racism, which may affect a person's sense of self-worth and his/her mental health, and be conducive to an increase in risk behaviors or a lack of health care-seeking behaviors (Jones, 2001).

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# Smoke-Free Multi-Unit Housing

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Approximately 40 million Americans live in multi-unit housing properties, which account for 31.5 percent of all housing units in the United States. The most recent housing data (2013) for Davidson County shows that 37.2% of the housing units are found in multi-unit structures. The Davidson County smoking rate is 20.9% of the adult population. (Tennessee Department of Health, 2014).

Smoking directly affects the health of those living in multi-unit homes. The home is a major source of secondhand smoke exposure for both adults and children. Eliminating indoor smoking is the only way to protect non-smokers from the harmful effects of tobacco smoke. For residents of multi-unit housing (e.g., apartment buildings and condominiums), secondhand smoke can be a major concern given that it can migrate from other units and common areas and travel through doorways, cracks in walls, electrical and plumbing lines.

Secondhand smoke is a mixture of side stream smoke from the tip of the cigarette and mainstream smoke exhaled by the smoker. It contains more than 4,000 chemicals, of which 250 are known to be harmful, and more than 50 are known to cause cancer (World Health Organization, 2007). Each year in the U.S. secondhand smoke causes disease and nearly 50,000 deaths from heart disease, lung cancer, and sudden infant death syndrome (SIDS), among others (Gasp Colorado, 2014).

The Metro Public Health Department is working to partner with multi-unit housing owners and managers (private and public) to develop policies aimed at protecting non-smokers who reside, visit or work in multi-unit residences with two or more apartments.

*Eliminating indoor smoking is the only way to protect non-smokers from the harmful effects of tobacco smoke.*

At this time, a vast majority of Davidson County, Nashville multi-unit housing properties do not have comprehensive smoke-free policies. The Metropolitan Development Housing Agency (MDHA) is one of the few that has implemented and enforced a policy for smoke free housing in all seven of its high rise properties.



### *Why Is Smoke Free Multi-Unit Housing a Health Equity Issue?*

**Vulnerable populations (e.g. children, older adults, minorities and disabled) are at a greater risk of being exposed to secondhand smoke:**

Studies have shown that low-income individuals have higher smoking rates, which increases their exposure to secondhand smoke in public, income based, or Section 8 Housing. Many minorities and low income populations suffer higher rates of asthma and other tobacco related issues making them particularly vulnerable to the effects of secondhand smoke exposure. One study found that children living in multi-unit dwellings had a 45% increase of cotinine levels (a metabolite caused by exposure to tobacco smoke).

**Residents who are being exposed to secondhand smoke may have limited housing options:**

Despite being non-smokers, many residents living in multi-unit housing are still exposed to secondhand smoke. The smoke can enter their apartments from other apartments through smoke creeping under doors, hallways, common spaces, shared ventilation systems, and even electrical units. Residents living in these communities may not have the financial means to move and the exposure to secondhand smoke can continue over a longer period of time.

Health equity should be considered when creating, implementing, enforcing, and evaluating a smoke free policy in multi-unit housing. The case for smoke free living for those who live in multi-unit housing is simple: cleaner air, decreased cleanup costs for property owners, fire prevention, and attracting residents.

The bottom line is not simply to enhance awareness or change attitudes towards smoking in multi-unit housing, but to motivate and empower people to make behavioral changes that can improve their health and the health of others in their community.

*“The connection between the health and the dwelling of the population is one of the most important that exists.”*

– Florence Nightingale

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# Healthcare Access

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World Health Organization (WHO) postulates, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). This definition broadens health to include not only the medical context of health but the mental and social aspects as well. However, a disproportionate number of people never get the privilege of experiencing ‘complete’ health due to economic and social conditions that influence individual and group differences in health status. One such difference that is a major impediment to achieving optimal and complete health is disparities in access to care, which is a very complex and multifarious subject.

Simply stated, health access encompasses the ability and opportunity to gain access to healthcare, which may be hampered by economic, organizational, social and cultural factors, such as lack of health insurances, lack of financial resources, irregular source of care, structural barriers, cultural and linguistic barriers, geographic barriers and oftentimes age.

According to the Small Area Health Insurance Estimates, there were an estimated 103,814 persons who did not have health insurance in Davidson County (U.S. Census Bureau, 2013). Accordingly, research suggests this population is likely to postpone care or fail to receive needed medical care, which exacerbates chronic conditions. Moreover, “health insurance enhances access to health services and offers financial protection against high expenses that are relatively unlikely to be incurred as well as those that are more modest but are still not affordable to some” (Institute of Medicine, 2001).

The Affordable Care Act (ACA) was created to address such issues. When the law was passed in 2010, the expectation was that all would be covered by Medicare, Medicaid, Veterans, employer coverage or the new offerings available to individuals through the Marketplace or an expanded version of Medicaid. However, when the Supreme Court decided in 2012 that each state would weigh-in on the decision to expand Medicaid, the Tennessee legislature and governor initially rejected the option, despite 100% federal funding for all new Medicaid enrollees for the first three years of operation through fiscal year 2015-16. This decision created a disparity in health access for the most poor and vulnerable in our state. Many who would have been eligible for Medicaid remain without insurance coverage options.

*Health access encompasses the ability and opportunity to gain access to healthcare, which may be hampered by economic, organizational, social and cultural factors.*

### *Key Changes for All*

The ACA focused on several key changes to the insurance marketplace, some of which affected all citizens, including:

- no exclusion due to pre-existing conditions
- no annual or lifetime cap on any covered individual
- mental health benefits
- preventive measures with free annual physical and associated screening tests appropriate by age and sex
- at least 80% of insurance company premiums must be spent on benefits, only 20% for administration
- same benefits on all policies and allowing direct comparison of premiums, deductibles, out-of-pocket maximums and co-payments
- insurance carrier competition in states dominated by one carrier with incentives to create consumer cooperative insurance carriers (Community Health Alliance now competes with Blue Cross Blue Shield of Tennessee which previously had 80% of the marketplace)
- a “responsibility penalty” requiring all to have health insurance to avoid an individual marketplace dominated by sick people forcing high insurance costs
- offering consumer choice with pricing options of more limited physician panels of physicians

### *Affordability*

For the vast majority of the people without insurance in Davidson County, and the nation, paying the full cost of insurance with no employer contribution is a problem. A sliding scale of advanced tax credits is available for any tax filing entity whose income is below 400% of the federal poverty level. The scale assumes that the household can pay approximately 8% of their income for health insurance, with the balance available as an advanced tax credit based on projected income for the current year and reconciled on the tax return when filed at the end of the year.

In addition, for those whose income is below 250% of the federal poverty level, insurance companies are required to reduce deductibles and maximum out of pocket proportionately to the level of poverty. The law requires that those between 100% and 150% of poverty, for example, pay no more than 94% of the actuarial cost of care during the year. This means that most who sign up in this category of income experience no deductible and a modest out of pocket maximum, if they pay a premium at an actuarial 80% of the cost of care. See the chart for examples.

For all of these Tennessee examples, the deductible is \$0 and the maximum out of pocket is \$800 for the adult. Note: insurance varied during open enrollment in 2014-15 with Community Health Alliance plans available up through Jan 17, 2015 when they reached their maximum enrollment.

### Reduction in Uninsured

In Tennessee, as of Feb. 22, 2015 according to the U.S. Department of Health and Human Services: enrollees qualified for an average tax credit of \$213 per month and 60% paid \$100 or less per month after tax credits. In Tennessee, 92 percent of individuals with a Marketplace plan selection had the option of selecting a plan for \$100 or less per month. Of the 59,091 active re-enrollees (26%), 35,674 switched to a different plan than they had in 2014 – that’s 60% of active re-enrollees and 29 percent of all re-enrollees.

Tennessee did not fare as well as AR or KY in reducing uninsured rates, due to lack of expansion of Medicaid (Withers, 2015). However, the rate did decrease from 16.8% to 15.1% from 2013 to 2014. It is estimated by the Kaiser Family Foundation that TN has enrolled 40% of its potential marketplace eligible population, as of Feb, 2015. In addition, another 100,000 people submitted applications in TN to begin the process to apply for Medicaid/Childrens Health Insurance Program; of these, the Marketplace found 40,000 to be eligible.

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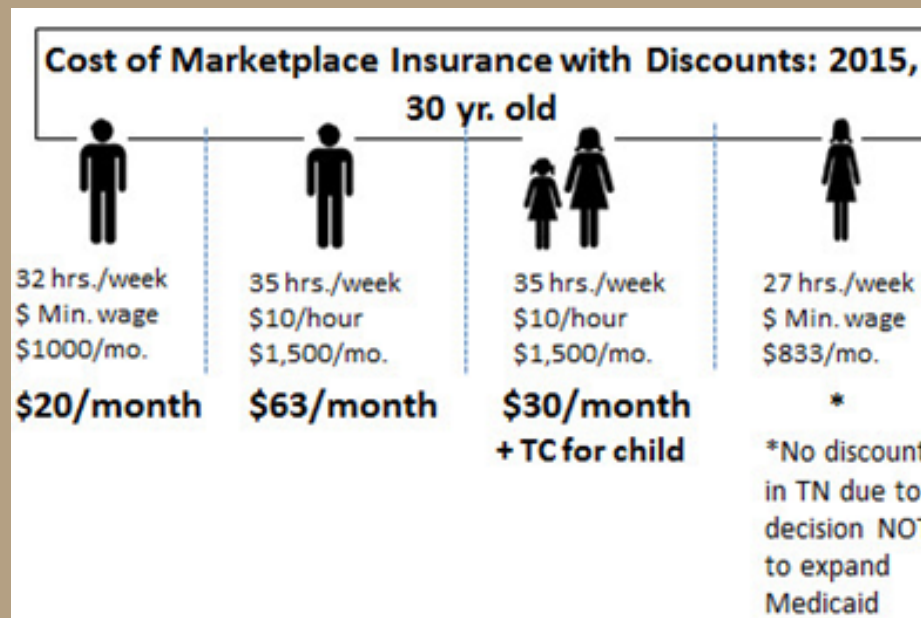
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Table 1: Marketplace Eligibility and Plan Selections in Tennessee, 2015

Number of Individuals Eligible to Enroll through the Marketplace for 2015 Coverage		Number of Individuals Eligible for Medicaid/ Childrens Health Insurance Plan	Number of Individuals with 2015 Plan Selections through the Marketplaces
Total Eligible to Enroll in a Marketplace Plan	Eligible to Enroll in a Marketplace Plan with Financial Assistance		
306,785	222,782	40,373	231,440



# Assuring Oral Health Equity

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*“In spite of the safe and effective means of maintaining oral health that have benefited the majority of Americans over the past half century, many among us still experience needless pain and suffering, complications that devastate overall health and well-being, and financial and social costs that diminish the quality of life and burden American society. What amounts to “a silent epidemic” of oral diseases is affecting our most vulnerable citizens—poor children, the elderly, and many members of racial and ethnic groups.” (U.S. Department of Health and Human Services, 2000)*

The preceding quotation highlights a health challenge that has persisted for as long as the federal government has collected data on health. One might argue that maintaining oral health requires much more than providing care. Yet, oral health care policies and programs are essential, if oral health is expected. Consequently, oral health and oral health care are interdependent and are synergized by three important elements which are: availability (suitable or ready to use), accessibility (able to be used, entered, or reached) and/or acceptability (meeting only minimum requirements). (Warren, 1999). Because underserved populations are disproportionately impacted by oral diseases, these elements are of great importance.

However, a more rigorous assessment of oral health outcomes suggests that oral diseases are largely related to selected risk factors and plausible associations between oral and systemic diseases (Warren, 2001; Romaire, Bell, and Huebner, 2012; Flores and Lin, 2013; Fisher-Owens et al., 2013; Harris et al., 2004). For example, the literature documents that diabetes is a risk factor for periodontal disease occurrence and progression (Taylor, 2001). There are common risk factors between other chronic diseases and oral diseases such as periodontal disease and vascular disease, and chronic alcoholism, as a common risk factor for oral cancer and alcoholic cirrhosis (Desvarieux, 2001; Perkins and Perkins, 2001).

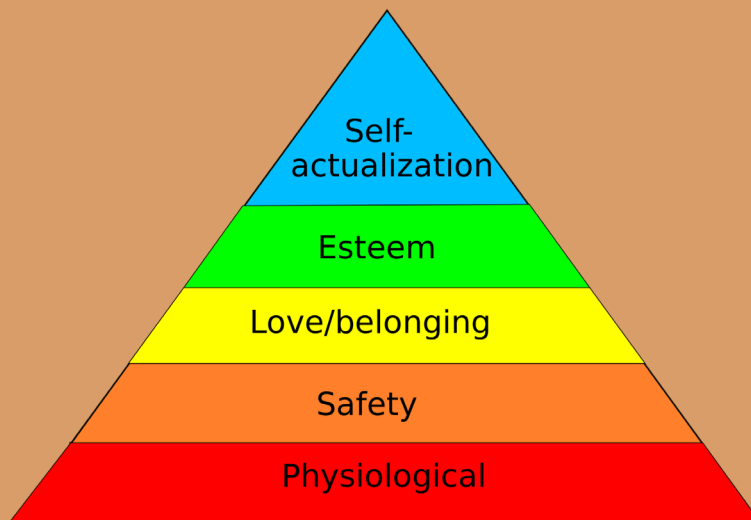
These bi-directional associations between oral and systemic diseases demand that federal, state and local health and health care policies and programs, in the public and private sectors, better determine underlying principles that undergird their operations. One foundational principle that should drive oral and systemic health is health equity, which posits that, “Ideally, everyone should have a fair opportunity to attain their full health potential, and more pragmatically, that no one should be disadvantaged from achieving this full potential, if it can be avoided.” (Braveman, 2006)

*Changing the word order from oral health equity to “equity in oral health” allows a reframing of equity as the subject of the initiative and oral health, as the outcome.*

In the context of health equity, oral health equity should focus on assuring health for those in greatest need, and include oral health care as an essential part of primary care. Health can be described as, “the relationship, the dynamic interplay between the physical, social, psychological, and spiritual well-being of the individual and the group and their interaction with the physical and social environment” (Warren, 1998) .

The 2000 U.S. Surgeon General's Report on Oral Health emphasized a broad definition of oral health that includes all aspects of the dental, oral and craniofacial complex. The report also emphasized the interaction, interconnectedness and inseparable aspects of oral and systemic health which also represents "the very essence of our humanity. To speak and smile; sigh and kiss; smell, taste, touch, chew, and swallow; cry out in pain; and convey a world of feelings and emotions through facial expressions transcends the false separation which is often omitted in understanding what it is to be truly human." (13)

Health promotion and disease prevention are the guiding principles of primary care. (14) More importantly, oral health equity must recognize that people prioritize their needs based on a psychological theory proposed in 1943, by Abraham Maslow, as a hierarchy of needs. (15) The earliest and most widespread version of Maslow's hierarchy of needs includes five motivational needs, often depicted as hierarchical levels within a pyramid.



This five stage model can be divided into basic (or deficiency) needs [e.g. physiological (red), safety (brown), love (yellow), and esteem (green) and growth needs (self-actualization/blue). In each of these need areas, oral health, within the context of systemic health, has specific operational implications. Referencing the 2000 Surgeon's Report on Oral Health, oral has broad utility; it is, "the very essence of our humanity." (16)

Changing the word order from oral health equity to "equity in oral health" allows a reframing of equity as the subject of the initiative and oral health, as the outcome. The emphasis is on equity and the policy direction can then be guided by Maslow's hierarchy of needs, in order to reach the operational description of health previously provided. This reordering places systemic health and oral health in the highest need area described by Maslow. The policy formation related to health which includes the broad scope of public health (i.e. physical, social, psychological and spiritual) will be facilitated by aligning oral health in its proper and most effective place.

The Surgeon General's Report on Oral Health suggests disparities exist in oral health and lower-economic status (SES) individuals are more likely to suffer from periodontal disease, oral cancer and dental caries. Barriers that can limit a person's use of preventive interventions and treatments include limited access to and availability of oral health care, lack of awareness of the need for care, and cost and fear of dental procedures. There are also social determinants that affect oral health. In general, people with lower levels of education and income, and people from specific racial/ethnic groups, have higher rates of disease. Past studies have indicated strong evidence to link smoking and spit tobacco to oral cancer and periodontal disease, but other relationships between health behaviors and oral health are not clearly outlined. Furthermore, there has been limited study on health behaviors and their relationship to disparities in the occurrence of dental caries in children. (17) Major improvements have occurred in the Nation's oral health, but some challenges remain and new concerns have emerged.

In order to most effectively assure oral health equity, emphasis must be placed on equity considering Maslow's hierarchy of needs to include systemic and oral needs as important elements in each stage of his model. Systemic and oral health care are particularly important because underserved populations are disproportionately burdened by preventable diseases and disabling conditions, which should not occur in a society where equity is viewed as an enabling factor for all of its constituents.

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# Surveying Public Opinion on the Determinants of Health

## A Tool for Understanding Public Support for Policies that Promote Health Equity

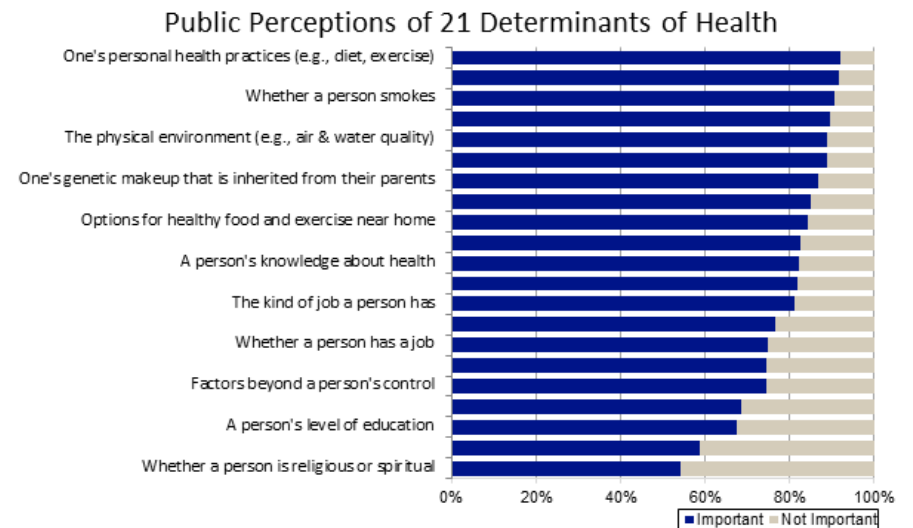
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Public health experts have long recognized important links between social practices, business practices, public policy, and the health of the general population. A growing body of health research has shown that these social practices and policies (often referred to as ‘social determinants of health’) have the potential to cause significant harm when they lead to unjust or unfair differences in health status according to demographic characteristics like race, social class, gender, or sexual orientation (also referred to as ‘health inequity’). Efforts to amend policies and practices in the pursuit of more equitable health outcomes can be thwarted when members of the general public do not recognize or value these links between policy and health outcomes, or when members of the general public do not support particular efforts to reduce unfair differences in health.

Public opinion polling on the connections between personal and social practices, public policy, and health outcomes can provide much needed perspectives for decision makers, public health experts, and concerned people who share an interest in promoting the cause of health equity. As part of an ongoing action research project supported by the W.K. Kellogg Foundation, our research team recently recruited a panel of 955 randomly selected residents of Minnesota, Michigan, and Ohio to participate in a survey to understand the particular causes of good and ill health that resonate most strongly among members of the general public. The following three charts describe some of our key survey findings.

In the first chart below, we asked survey respondents to rate the importance of each item from a list of 21 possible influences on a person’s health. The list below is arranged so that the causal factor rated as important by the largest percentage of respondents (personal health practices, 92%) is listed at the top, and followed successively by explanations with less and less support below.



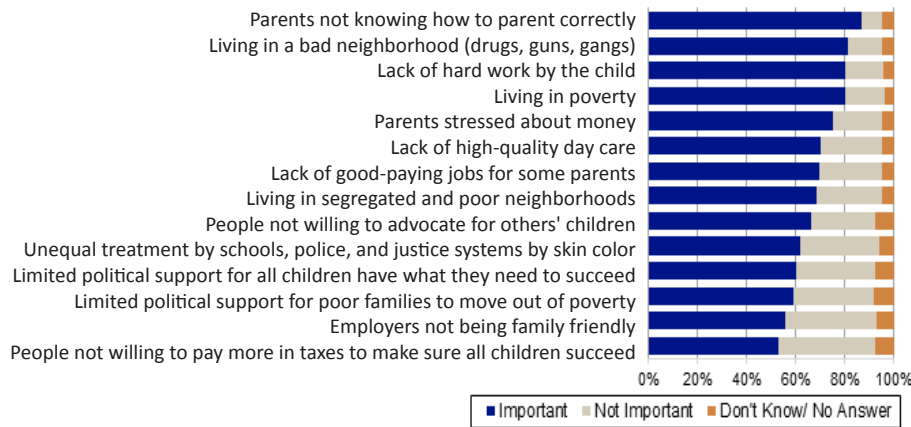
*Public opinion polling on the connections between personal and social practices, public policy, and health outcomes can provide much needed perspectives for decision makers, public health experts, and concerned people who share an interest in promoting the cause of health equity.*



Determinants of health related to individual responsibility and choice garnered the highest levels of support from respondents, but did not entirely dominate the top of the list for causes of good and ill health. Social and environmental determinants such as air and water quality, the affordability of health care and health insurance, options for healthy food and exercise, public safety, housing quality, and characteristics of a person’s job were all cited as important determinants of health by 80% or more of respondents.

In addition to general understandings of determinants of health, a key interest within our study was public sentiment relevant to determinants of child health and well-being. We asked respondents to rate the importance of 14 potential reasons why children struggle (e.g., do poorly in school, don’t graduate from high school, become teen parents, get into drugs, or become involved in crime). The table below illustrates survey findings for each of the 14 reasons why children struggle, arranged according to the percentage of respondents who rated a given reason as ‘Important’.

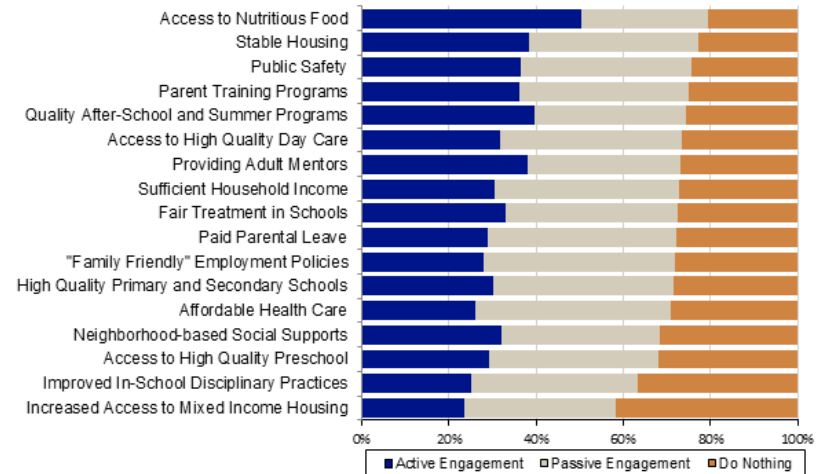
Public Perceptions of Why Children Struggle



As in the previous chart, we see that individual-level attributions for children’s struggles tended to dominate this list, however, respondents to this survey did recognize the effects of a number of social determinants of health. Poverty, lack of good paying jobs, and lack of high-quality daycare were all cited as ‘Important’ by 70% or more of respondents.

Finally, we asked respondents to report on their willingness to take action to help children succeed. Specifically, we asked about 17 potential interventions to help children (shown below), and then gave respondents a range of possible actions they could take to support each. Possible answer choices ranged from Active Support (‘Volunteer with group supporting this,’ ‘Pay more at register to support this,’ ‘Donate money’), to Passive Support (‘Sign a Petition,’ ‘Ask Friends to Do Something,’ ‘Share Information’), and Non-Support (‘Do Nothing’). Each of the 17 interventions listed below are arranged in order of level of public support (Active & Passive combined).

Public Support for Interventions to Help Children Succeed



Alignment between widely cited ‘reasons why children struggle’ and support for ‘interventions to help children succeed’ suggest possible avenues forward for those with an interest in addressing social determinants of health inequity. For example, approximately 70% of respondents recognized ‘Lack of access to high quality day care’ as a reason why children struggle, and at the same time 70% of respondents also expressed a willingness to support efforts to improve access to high quality day care.

### *Implications for Health Equity Efforts in Nashville*

Findings presented here illustrate the continued importance of individual-centric narratives of health causality and potential areas for further development of public understandings of social determinants of health equity. Epidemiological research has begun to illustrate the many health effects (both positive and negative) of a wide range of social practices, business practices, and public policies. However, the relative lack of recognition of the importance of these factors among members of the general public presents a real challenge to efforts to amend policies and practices in the pursuit of more equitable health outcomes.

Survey research like that described here has great potential to serve as a tool to inform the efforts of those working to address social determinants of health inequity. For example, 70% of respondents cited ‘Lack of high quality day care’ as a reason why some children struggle, while at the same time 70% expressed support for increasing access to such care. This finding suggests that increasing access to high quality child care would likely enjoy considerable support from the general public.

While the data reported here were collected in three Midwestern states and do not directly describe the opinions of those in Middle Tennessee, they do certainly represent a useful tool that could be implemented in Middle Tennessee to aid public health experts, community groups, and decision makers as they work to achieve more equitable health outcomes for all.

# risk factors and behaviors

Youth Violence Prevention

Sex Trafficking: A Health Equity Issue

WIC Mobile Outreach: An Innovative Prevention Effort to Address Health Equity

Breastfeeding Rates in Nashville

# Youth Violence Prevention

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Over the last decade, youth violence and aggression has remained one of the leading causes of death, disability and social problems among youths in the United States (Centers for Disease Control and Prevention, 2011; Centers for Disease Control and Prevention, n.d.; David-Ferdon and Simon, 2014). Each year more youths die from homicide than cancer, heart disease, birth defects, flu and pneumonia, respiratory diseases, stroke and diabetes combined. In 2011, it was found that for every young victim of a homicide about 142 youths presented with nonfatal injuries to the emergency department (David-Ferdon and Simon, 2014). Yet even before violence reaches the extent of the emergency room, children are feeling the effects of youth aggression. Based on a 2013 nationally-represented sample of youths in grades 9-12, 24.7% of high school students reported being involved in a physical fight in the last year and 20% reported being bullied on school property (Centers for Disease Control and Prevention, n.d.; David-Ferdon and Simon, 2014).

As a state, Tennessee had the highest rate of violent crime of any state in 2009 and 2010 (Haas, 2011). According to the FBI Uniform crime report, Nashville was ranked the 7th most dangerous city of 500,000 people or more in 2010. (Federal Bureau of Investigation, 2010). Previous studies have researched the risk factors associated with youth violence demonstrating clear racial disparities regarding the incidence of violent injuries. As an orthopaedic trauma surgeon at Vanderbilt University Medical Center, Dr. Manny Sethi has witnessed firsthand the inordinate number of injuries in youths as a result of preventable violent actions. In 2013, Dr. Manny and his colleagues at the Vanderbilt Orthopaedic Institute Center for Health Policy conducted a study of over 300,000 patients admitted to the emergency department at Vanderbilt from 2004 to 2009 and found a sharp rise in violence especially among African Americans ages 18 to 25 (Moore et al., 2012). The question then became: how do we prevent violence before it begins?

With a better understanding of the demographics of victims of violence, a thorough investigation of prevention programs across the country was conducted. Previous research has shown that school-based interventions are an effective tool to reduce violence and associated aggressive behaviors (Hahn et al., 2007; Irwin et al., 2001; Mytton et al., 2002; Ttofi and Farrington, 2011; Wilson, Lipsey, and Derzon, 2003; Park-Higgerson et al., 2008; Wilson and Lipsey, 2007; Mytton et al., 2006; Cooper, Luttenbacher, and Faccia, 2000). These programs are built on the theory that violent behavior is learned from a child's environment, and therefore can be prevented through education and targeted interventions. Middle school-aged children have found to be highly effected by violence prevention programs (Kellam et al., 1998; Hawkins et al., 1999). For example, Kellam et al found that aggression in middle school is linked to behavior in early childhood and can be prevented through education-based intervention (Hawkins et al., 1999).

*We need to really focus on developing alternative conflict resolution strategies in our children.*

After evaluating 30 different programs and feedback from focus groups of victims of violence, an evidence-based school intervention called Aggressors, Victims and Bystanders (AVB) was selected as the intervention due to its emphasis on peer-learning and social development strategies (Slaby, Wilson-Brewer, and Dash, 1994). The program is a 12-step curriculum arranged to reinforce the concept of the "Think First Model," which teaches the students to stop, evaluate the situation, and calmly make a decision on how to handle a situation.

Each lesson involves interactive activities including group discussion, partner work, and role-playing exercises. As the director of the program, Dr. Manny explained the importance of intervention programs such as AVB: “We need to really focus on developing alternative conflict resolution strategies in our children.” Ultimately, the community needs to educate children how to peacefully manage conflict in order to prevent them from resorting to violence as young adults.

In 2012, Dr. Manny and his team successfully implemented a pilot violence prevention program in a public school in Nashville, Tennessee and found a significant reduction in the student’s beliefs and behavior regarding violence (Thakore et al., 2014). Reaching 122 student subjects across five classes, the analysis of pre-test and post-tests demonstrated that the AVB curriculum was successful in reducing violence: the investigators found that students felt less physically and verbally victimized by their peers and more students were likely to think through a heated situation, a skill that was a key component of the AVB curriculum.

From the success of the pilot program, Metropolitan Nashville Public Schools proceeded to implement the program at a full-scale level. A total of 2,284 students successfully completed the pre-tests, AVB curriculum and post-tests across a total of six Metropolitan Nashville Public middle schools. Based on analysis of the pre-test and post-test responses, 70.3% of questions showed improvement from the pre-test to post-test. Improvement was defined as any change in score from the pre-test to post-test that reflected a positive trend in behavior regardless of significance. Students responded that they were less likely to stand by and watch others fight ( $p=0.020$ ). Students also felt less at risk for being hit or pushed by others ( $p=0.036$ ). For significant changes in beliefs, responses showed that students believed they could make a difference in preventing violence ( $p=0.045$ ) and that the victim of a fight was not at fault ( $p<0.001$ ).

As youth violence continues to impact the lives of children in the Nashville community, it is the responsibility of physicians, educators and leaders to implement effective interventions. Education-based interventions have not only found to successfully reduce violence behaviors, but have also shown to have lasting effects.

As shown by the success of the AVB program in Middle Schools, Dr. Manny stated, “I think the power of what we are doing is the power of community and, in this case, the power of doctors partnering with educators...When things get to me, it is too late.” Over the past few months, the AVB program has expanded to cities across Tennessee.

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# Sex Trafficking: A Health Equity Issue

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There is a thin line between prostitution and sex trafficking. Some would argue there is no line. But according to the federal definition of sex trafficking, a line does exist for adults. Pursuant to 22 U.S. Code §7102, the term “sex trafficking” refers to an act “in which a commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such act has not attained 18 years of age.”

Sex trafficking is a public health issue. The treatment that sex trafficking victims experience affects the health and well-being of the individual physically and mentally. But the trickle out effect at the family, community and societal levels should be considered as well. There are few empirical studies on the experiences and outcomes for sex trafficking victims. Most of the research knowledge comes from studies and interviews with adult prostitutes and victims of childhood sexual abuse. Studies on prostitutes indicate that they experience violence on a daily basis including everything from being pinched to being stabbed (Williamson and Folaron, 2001). In another study among street-based prostitutes, the researcher discovered that the women they interviewed started with 2 to 20 “johns” a day, but that number ranged as high as 40 the longer they were prostituted (Raphael et al., 2010). To better understand how childhood sexual abuse affects individual outcomes that impact the community in a different way, Siegel and Williams (2003) gathered data on women who (as children) were treated for sexual abuse in an emergency room. What they found was that those who experienced childhood sex abuse were more likely, than those who were not abused, to be arrested as adults. Furthermore, sex trafficking (aka commercial sex abuse) is a more complicated violation than non-commercial sex abuse.

With sex abuse (non-commercial), typically there is one perpetrator per violation. With sex trafficking (commercial), there are at least two perpetrators per violation (the trafficker/pimp and customer/john).

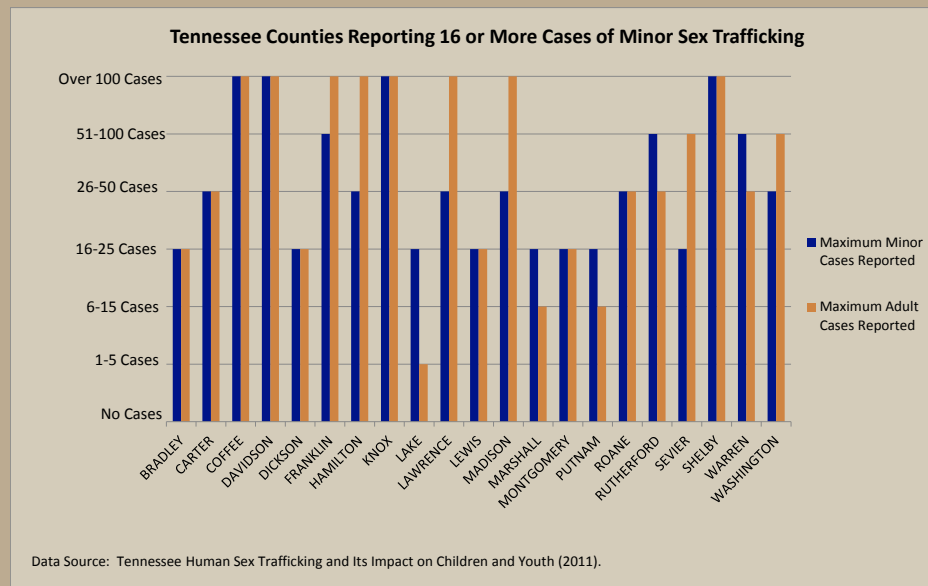
*Sex trafficking is a health equity issue. While sex trafficking cuts across gender, race/ethnicity, and socioeconomic statuses, it disproportionately affects women/girls, people of color, and those with limited access to economic resources.*

Sex trafficking is a health equity issue. While sex trafficking cuts across gender, race/ethnicity, and socioeconomic statuses (SES), it disproportionately affects women/girls, people of color, and those with limited access to economic resources. Women are disproportionately victims of sex trafficking. Men and boys can be and are trafficked for the sex trade, but women and girls make up the overwhelming majority of sex trafficking victims. Women of color, especially African Americans and Latinas, are also disproportionately affected by sex trafficking. Finally, sex trafficking is an economic issue. Although adequate access to economic resources is not a guarantee one will not become a victim of sex trafficking, those who have limited resources and means of income may turn to prostitution for survival but then become victims of trafficking.

Sex trafficking is a domestic issue and it is a local issue. Americans and U.S. institutions have long perceived human trafficking to be a foreign problem, or if it occurred within U.S. borders, a problem among foreigners. But recently, that perception has shifted and more researchers, practitioners and the general public are realizing that sex trafficking is a problem in the U.S. among foreign-born and native-born persons. Tennessee has worked to uncover and address the problem of sex trafficking in the state.

### Sex trafficking in Tennessee

The Tennessee Bureau of Investigation conducted a statewide assessment of sex trafficking. Front line professionals (such as law enforcement and social service workers) who may have come into contact with or were in a position to be aware of cases of sex trafficking were surveyed. They were given a definition of sex trafficking (see the 22 U.S. Code §7102 definition above) and then asked, based on that definition, how many cases of sex trafficking they were aware of in their jurisdiction within the last 24 months. There were seven response categories, from “No cases” to “Over 100 cases.” The table below shows which TN counties had the highest number of sex trafficking cases reported by respondents.



### Sex Trafficking in Davidson County

The TBI study referenced above revealed that over 100 cases of sex trafficking occurred in Davidson County from 2008 to 2010. To get a better look at sex trafficking in Davidson County, and how much overlap there is between sex trafficking and prostitution, it is useful to look at data collected by Assistant District Attorney Antoinette Welch who founded the Hannah Project, a five-hour intervention class offered to women convicted of prostitution in Tennessee in lieu of criminal charges. Those attending are provided with education on sexually transmitted diseases, are tested for some diseases, see crime scene photos of former prostitutes who have been murdered, and hear from crisis counselors who provide them with information on community resources available to them. The ADA has been collecting survey data from those who participate to determine what proportion of the women may be victims of trafficking.

From July 2011 to March 2014, 731 persons charged with prostitution attended the Hannah Project class. Of this total, one is male. The race for 702 attendees was documented: White (61%; N=430); Black (37%; N=260); Asian (2%; N=12). The survey to explore sex trafficking victimization was introduced after the beginning of the initiative and so far, 415 surveys have been collected and analyzed. The age range for respondents was 18-58. The age range for the first time a respondent was involved in a commercial sex act as a minor was 8-17. A respondent was considered a victim of sex trafficking if she indicated she was currently forced or had ever been forced to prostitute. A respondent was also considered a victim of sex trafficking if she indicated that she had ever been forced or paid for a sex act as a minor. Out of all respondents, 144 (35 percent) were identified as victims of sex trafficking (Robinson, 2014).

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# WIC Mobile Outreach

## An Innovative Prevention Effort to Address Health Equity

Teresa Thomas

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Although often viewed solely as a supplemental food program, the actual purpose of the Women, Infants, and Children (WIC) Program is nutrition-related disease prevention and overall health promotion. WIC is a federally-funded program that focuses on preventing and improving nutrition-related health problems in at-risk populations, as well as promoting overall wellness for WIC-qualifying families. According to the American College of Preventive Medicine (2015), the goal of preventive healthcare is “to protect, promote and maintain health and well-being and to prevent disease, disability and death.” This includes but expands far beyond food security alone. The WIC Program of Nashville and Davidson County believes that the best way to provide comprehensive preventive care for our participants is to connect them with available resources in the community that meet their specific healthcare needs. From July 1, 2013 to June 30, 2014, Nashville’s WIC program served 30,090 residents.

In order to meet that goal, our local WIC division has created a mobile outreach team. Mobile Outreach promotes health equity and reduces health disparities within our community by improving nutrition-related health problems in at-risk populations and by reducing the barriers of time, money and transportation to help our residents obtain WIC services. Numerous studies have shown that pregnant women who participate in WIC have longer pregnancies leading to fewer premature births; have fewer low and very low birth-weight babies; experience fewer fetal and infant deaths; seek prenatal care earlier in pregnancy and consume more of such key nutrients as iron, protein, calcium and Vitamins A and C.

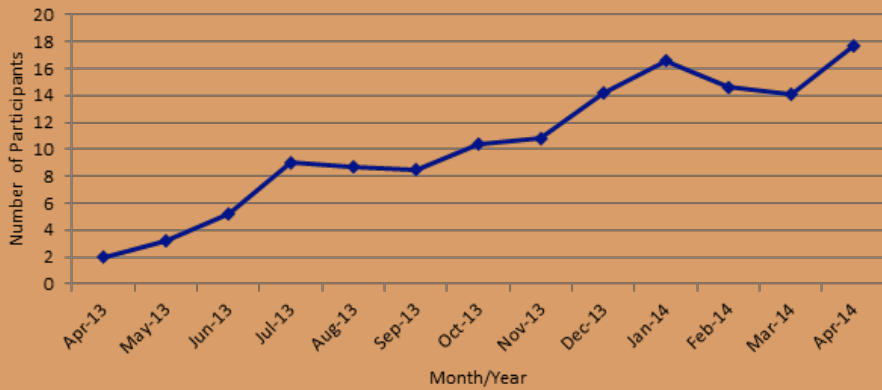
The Metro Davidson County WIC Program launched the Mobile Outreach Pilot Program in April, 2013. During the first 6 months, we conducted an average of 16 classes per month with a mean attendance of 6.1 participants per class. Over the remainder of the pilot year, the number of classes per month remained steady but the average attendance per class increased by 55% to 13.5 participants per class. At the end of the second year the class attendance continued to steadily climb with a 41% participation increase.

*WIC Mobile Outreach promotes health equity and reduces health disparities within our community by improving nutrition-related health problems in at-risk populations and by reducing the barriers of time, money and transportation to help our residents obtain WIC services.*

In addition to providing WIC services, this team collaborates with more than 20 internal and external organizations in the Nashville community to deliver more comprehensive care to WIC participants. We use community partnerships in our outreach program to provide: participant outreach and retention, improved cultural competency and cross-cultural communications, program eligibility education, elimination of transportation barriers, and healthcare networking and referrals.

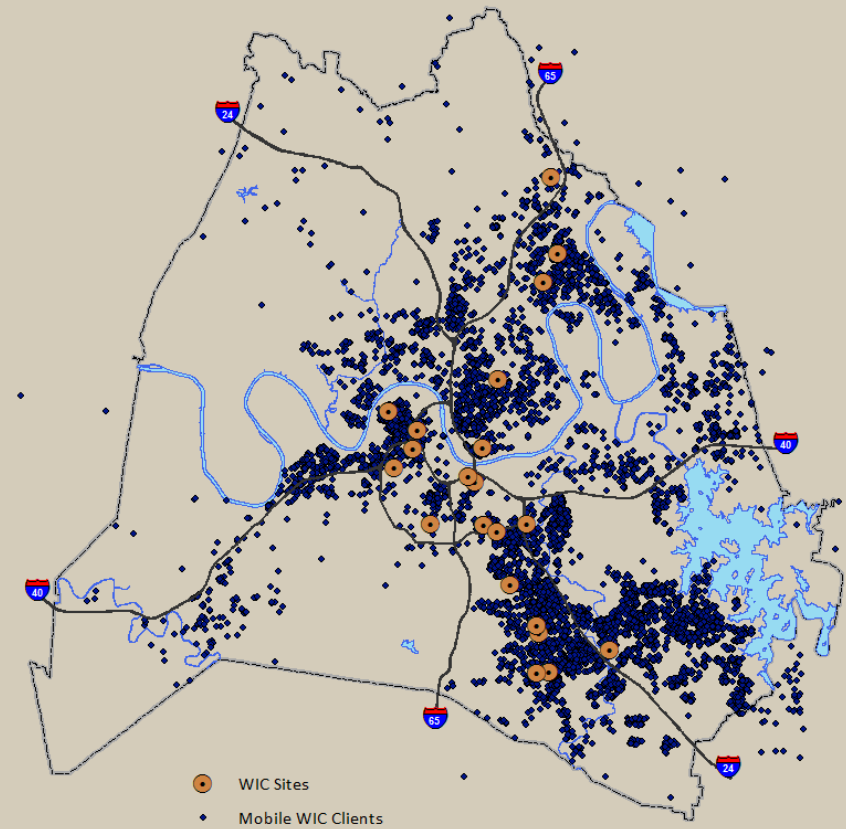


Average Attendance per Class  
Davidson County WIC Mobile Clinic



Contract Organization	Number of Locations
Metro Development and Housing Agency (MDHA)	12
Nashville Public Library	21
Metro Parks	26
Center for Refugees and Immigrants of Tennessee (CRIT)	2
Casa Azafrán	1
World Relief	1
Nashville International Center for Empowerment (NICE)	1
Matthew's Memorial United Methodist Church	1
Millwood Manor Apartments	1
Progreso Community Center	1
Church of the Redeemer	1
The Branch Food Bank	1
<b>Total</b>	<b>69</b>

Mobile WIC Clients and WIC Sites  
Davidson County 2015



WIC Mobile Outreach has written user agreements with twelve community organizations in Davidson County. Most of the community organizations that we have contracts with have multiple locations where we may conduct classes. During the pilot phase of the WIC Mobile Program only 18 of the 69 possible community organization classroom sites are being utilized, with the potential to add 50 new locations utilizing current community agreements.

Even as a pilot program WIC Mobile has received local and national attention for its innovative approach to healthcare. During the 2013/14 Davidson County Mayor's Budget Hearings, WIC Mobile was recognized on the mayor's accomplishments list. At the upcoming 2015 National WIC Association Meeting, program staff will present on the use of community partnerships to provide more comprehensive health services.

### *The Benefits of WIC Participation*

- Helps reduce household food insecurity
- Significantly increases the Healthy Eating Index scores of households
- Infants are in better health than eligible infants not participating in WIC
- Children have increased intakes of iron, potassium, and fiber
- Nutrition education leads to an increased consumption of whole grains, fruits and lower fat milk
- Children ages 1 to 2 have less dental related Medicaid costs compared to children who do not participate in WIC

- Reduces the risk of child abuse or neglect
- Improves healthful behaviors that are linked to reducing early childhood obesity
- Children are more likely to receive regular preventative health care and have increased diagnosis of treatments of childhood illnesses, such as otitis media, gastroenteritis, upper and lower respiratory infections and asthma
- Increases immunization rates (National WIC Association, 2015)

### *WIC Access in Davidson County*

- Bedside service in 4 area hospitals (Vanderbilt, St. Thomas Midtown, General, Centennial)
- 4 WIC clinic locations for Davidson County residents to choose as their WIC home: Lentz, East, Woodbine, South Nutrition
- Mobile WIC Outreach services at 18 different locations throughout Davidson County

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National WIC Association. (2015). Position papers and fact sheets. Retrieved from: <https://www.nwica.org/position-papers>

# Breastfeeding Rates in Nashville

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Breastfeeding is the beginning of prevention in our health care system, requires very little infrastructure for success, and is essentially cost-free. Breast milk is widely acknowledged to be the most complete form of nutrition for most infants, with a range of benefits for their health, growth, immunity, and development; however, there are still significant gaps in our population in regards to education and support of this best practice.

The research into the practice of breastfeeding shows that babies who are breastfed exclusively for six months are six times more likely to survive the early months of life. The incredible health benefits for an infant who is breastfed include but are not limited to acquisition of antibodies that help stave off disease, proper formation of the mouth and jaw, significantly lower risk of chronic conditions like obesity, high blood pressure, asthma and diabetes, as well as incredible mental and emotional health benefits from the hormones secreted during breastfeeding. The completeness of breast milk cannot be overstated; each mother's milk is different and contains exactly what the individual infant requires for six months. There are no formulas on the market that can match the unique complexity of breast milk (U.S. Department of Health and Human Services, 2014; United Nations Children's Emergency Fund, 2014).

Maternal health is also greatly impacted by the practice of breastfeeding. Breastfeeding mothers have lower risks of breast, uterine, and ovarian cancer; they also return to their pre-pregnancy weight faster and are less likely to become obese (World Health Organization, 2014).

Breastfeeding mothers also experience mental health benefits from hormones, like oxytocin, that are released during breastfeeding (American Academy of Pediatrics, 2014; U.S. Department of Health and Human Services, 2014).

*Breastfeeding is the beginning of prevention in our health system.*

Breastfeeding rates for the state have improved over the past several years, and Metro Davidson County's has improved even more. Metro's breastfeeding rate increased from 65.6% in 2010 to 83.5% in 2013. The data show that between 2010 and 2013, breastfeeding rates in Davidson County were above average for the state of Tennessee and the country, as a whole. They also exceeded the requirements for the Mothers, Infants, and Children Health objective 21.1 from Healthy People 2020, the 10-year agenda for health promotion and disease prevention by the U.S. Department of Health and Human Services.

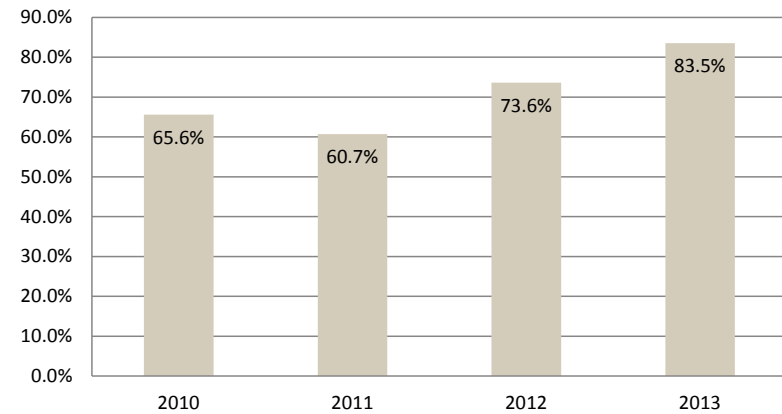
While the overall initiation rate is on the rise as education improves, a clear disparity exists in the data, with a nearly 20 point gap between Black mothers and White mothers; we also know from national data that many of these women do not continue breastfeeding past three months, due to a variety of factors including going back to work, lack of support in medical facilities and at home, and other societal factors (Centers for Disease Control and Prevention, 2014; U.S. Department of Health and Human Services, 2011).

Some hospitals in Nashville have begun to implement important steps to advance health equity by increasing breastfeeding rates. “Ten Steps to Successful Breastfeeding,” the foundation of the WHO Baby Friendly Hospital Initiative, are evidence-based practices for hospitals, shown to reduce the disparities in breastfeeding rates regardless of where the hospital is located or what population they serve (World Health Organization, 2014). They include:

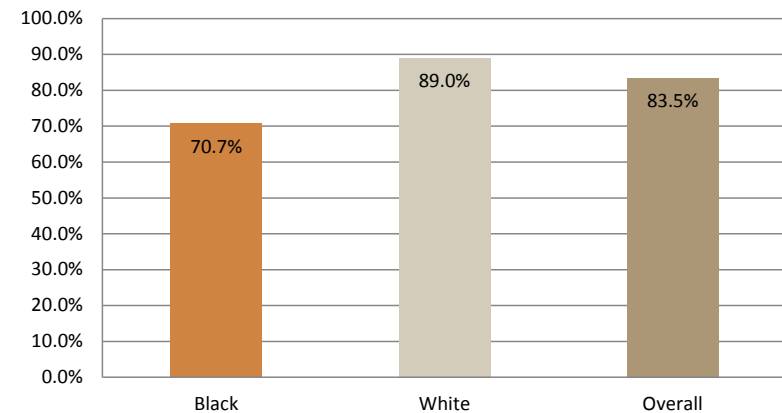
1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk unless medically indicated.
7. Practice rooming-in - allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

While no single hospital in Nashville has achieved all ten of these prescribed steps to become a Baby Friendly Hospital, Monroe Carell Jr. Children’s Hospital at Vanderbilt, Centennial Medical Center, Baptist (now St. Thomas Midtown), and Nashville General Hospital at Meharry hospitals have achieved five of them by way of a campaign called “Give Me Five,” a Communities Putting Prevention to Work (CPPW) grant initiative. Vanderbilt University has made the commitment to achieve the designation to become a Baby Friendly Hospital, and is nearing the final phases of completion.

**Breastfeeding Initiation Rates in Davidson County 2010-2013**



**Breastfeeding Initiation Rates by Race in Davidson County in 2013**



Policy changes are also an important part of changing the culture around the practice of breastfeeding. In 2006, the state of Tennessee enacted the following laws to support breastfeeding in public and in the workplace:

- TCA 68-58-101: A mother may breastfeed in any public or private place she is authorized to be.
- TCA 68-58-102: Breastfeeding shall not be considered public indecency or nudity, obscene, or sexual conduct.
- TCA -68-58-103: Local governments shall not prohibit breastfeeding in public by local ordinance.
- TCA 50-1-305: Employers must accommodate breastfeeding mothers at work.
- Tenn. Code Ann. § 68-58-101 et seq. (2006, 2011) permits a mother to breastfeed in any location, public or private, that the mother is authorized to be, and prohibits local governments from criminalizing or restricting breastfeeding. Specifies that the act of breastfeeding shall not be considered public indecency as defined by § 39-13-511; or nudity, obscene, or sexual conduct as defined in § 39-17-901. Tenn. Code Ann. § 68-58-101 et seq. and § 39-13-511(d) were amended in 2011 by Tenn. Pub. Acts, Chap. 91 (SB 83) to remove a provision permitting mothers to breastfeed only infants 12 months or younger in any location. (2006 Tenn. Law, Chap. 617; HB 3582)
- Tenn. Code Ann. § 50-1-305 (1999) requires employers to provide daily unpaid break time for a mother to express breast milk for her infant child. Employers are also required to make a reasonable effort to provide a private location, other than a toilet stall, in close proximity to the workplace for this activity. (1999 Tenn. Law, Chap. 161; SB 1856)

To further educate employers, businesses, and patrons, the Metro Public Health Department, in collaboration with the state of Tennessee, started the Breastfeeding Welcomed Here campaign. This ongoing outreach project allows businesses to ask questions and learn the details about the regional and local laws surrounding breastfeeding and allows public health educators to provide guidance on how to avoid any conflicts. More than seventy-five businesses in Davidson County have taken this pledge, and hundreds more have taken the pledge across Tennessee.

As the data surrounding the benefits of breastfeeding for the mother-child dyad continues, we must also continue to find solutions to remove barriers in hospitals, at home, work, and in public settings. This best practice is a learned behavior that requires the support of the full community. Cultivating and analyzing more complex data surrounding breastfeeding may also help us to address inequities.

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# disease

HIV and Aging

STD Incidence and Prevalence

Avoidable Hospitalizations

# HIV and Aging

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*Ryan White Program*

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In 2014, 20% of HIV prevalence (this includes people with HIV and people with AIDS) in the Nashville Regional Transitional Grant Area (TGA) (13-county geographical area in Middle Tennessee covered by the Ryan White Part A Program) occurs in individuals under the age of 34, 22% of prevalence occurs in people aged 35-44, 34.6% of prevalence is in the 45-54 year old age group alone, with the remaining 23% in the 55-64 age group. Breaking this out a bit more, over half of the HIV disease prevalence in this community occurs in people who are aged 45 and up. Perhaps more telling is the percent change for each of these groups since 2010. Over the past 5 years there has been a 30.4% increase in the prevalence of HIV disease in the under 15 age group, a 9.5% increase in 15-24 year olds, and a 22% increase in 25-34 year olds. Interestingly, there has been a 9.3% decrease in the 35-44 year old group over the past 5 years. But the biggest changes in prevalence have occurred in the oldest age groups: 45-54 year olds have seen a 22% increase, 55-64 year olds have seen a 76.1% increase, and those aged 65 and up have grown by 113.9% since 2010. This indicates that in the past five years, the number of people aged 65 and up with HIV disease has more than doubled – put differently, in 2014, for the first time, there are now more people in this age group with HIV disease than in the 15-24 year old age group.

When looking specifically at non-Hispanic black People Living with HIV/AIDS (PLWHA), 15-24 year olds have grown by 8%, and 25-34 year olds have seen a 34.7% increase since 2010. The 35-44 year old group has seen an 8.4% decrease in the Black population over the last 5 years. The older age groups for the Black population have also seen very large increases: the 45-54 year old group grew by 14%, the 55-64 year old group saw a 79% increase and those 65 years and older saw a 146% increase.

If you examine the non-Hispanic black PLWHA population with the aggregate data, you can see that in 2014 this group represented a large majority of the cases in the 15-24 year old age group (150/219, or 68.4%). Historically this young Black group has received a lot of attention, in both services and funding, because they represented the largest number of new cases (incidence) each year– but that is starting to change as well, according to the figure below.

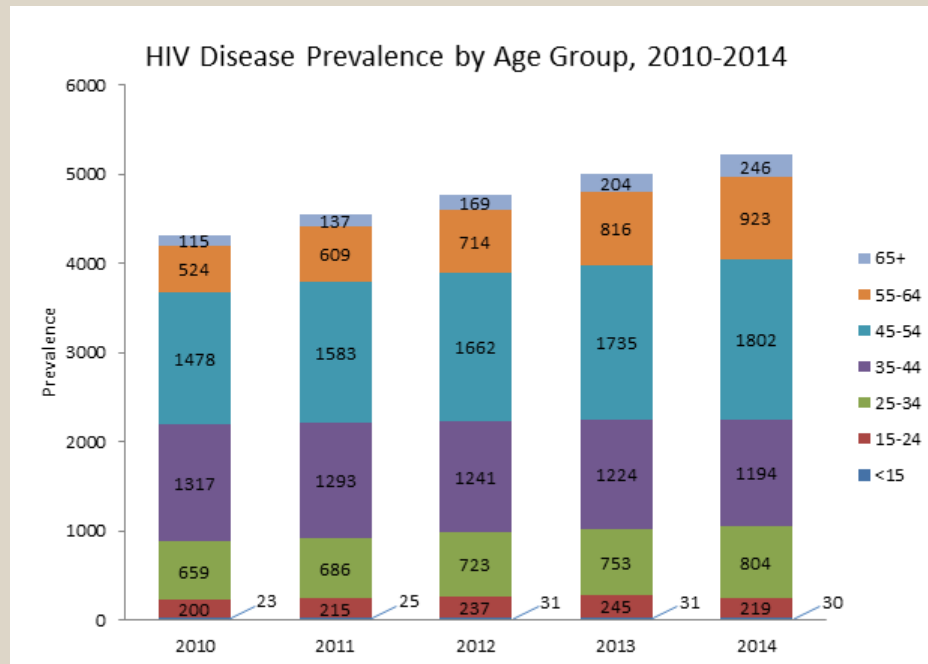
*While focusing on race and a specific age group has improved outcomes for that group over the last five years, other age groups have been growing very rapidly and need additional resources and services.*

So here is an interesting case for health equity: there has historically been a group that had the largest number of new cases in a given year, and a majority of cases in this age group tended to be prevalent within a single racial group. Over the course of the past five years this group has been in the spotlight in the Nashville TGA, receiving many funding directives and recommendations for services, having social networking strategies and testing efforts being focused on them, and we can see that relative to other groups there has been an impact.

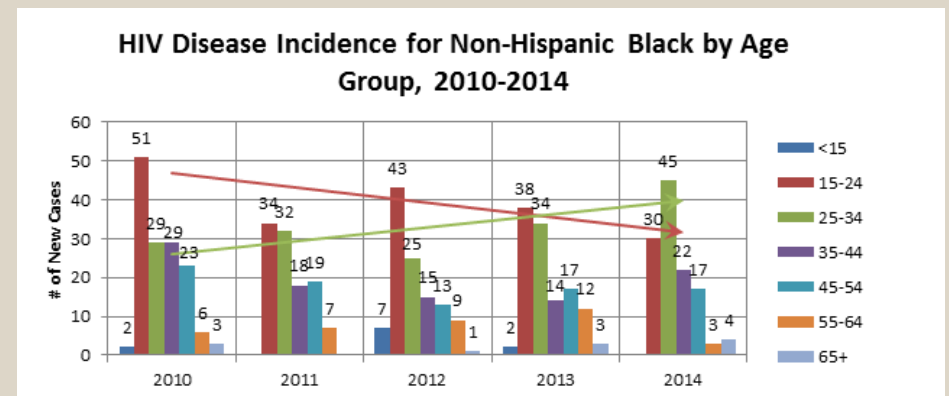
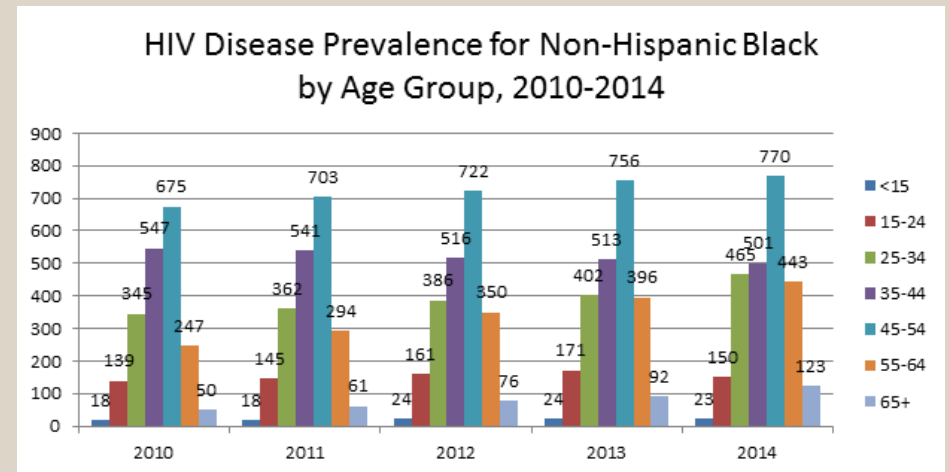
This age group has the smallest percentage change of any group that has grown in prevalence in the past 5 years, and since 2013 this age group is no longer where most of the new cases of HIV disease are found. By all accounts this is a great success and shows how concerted effort can start to impact a disease over time – yes there is still a racial divide for the 15-24 year old age group, although change has started.

But what about the other side of the age distribution over the last 5 years?

Those aged 65 and up have grown by 113.9% since 2010, and in 2014 for the first time there were more people living with HIV disease in this age group than there were 15-24 year olds. The 55-64 year olds have seen a 76.1% increase in this same time frame. In a review of the recommendations to the Ryan White Part A planning body for addressing issues in the TGA over the last 5 years, there have only been 2 items that specifically mention the aging population, and both of them point to the need for further monitoring.



When talking about health equity, it is important to try and capture as many socio-demographic facets of our populations as possible – while focusing on race and a specific age group has improved outcomes for that group over the last five years, other age groups have been growing very rapidly and need additional resources and services. One of the big challenges in moving toward health equity is to manage both intensity and focus. Vulnerable populations need to be reached (in the case of HIV disease, young Black people) with necessary services to stop new cases of the disease, but the changing demographics of those living with the disease must be monitored in addition to and providing adequate services for each.





# STD Incidence and Prevalence

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According to the 2013 Centers for Disease Control and Prevention surveillance report, chlamydia and gonorrhea have broken their upward trend of the previous five years. Their rates declined in 2013 from their respective level of 2012. During the same period the upward trend of primary and secondary (P&S) syphilis that had started much earlier was broken by a rate decrease in 2010, followed by another rate increase that began in 2011. In 2013, this increase was solely among men who accounted for 91% of all primary and secondary syphilis cases. Men who have sex with men account for 75% of male cases. It is worth noting also that racial and ethnic disparities remain - the rate of primary and secondary syphilis among Blacks was almost six times the rate among Whites overall and was approximately 13 times among Blacks aged 15–19 years.

In Davidson County, the 2014 chlamydia and syphilis rates increased from what they were in 2013. For the last five years, chlamydia, gonorrhea and late syphilis trended upward, while early syphilis remained flat (Charts 1 and 2). The most affected groups are generally non-Hispanic blacks, 15 to 24 year olds, and males. With regard to race/ethnicity, non-Hispanic blacks were disproportionately represented in each individual STD category and all age groups. Their overall STD rate was more than six times that of non-Hispanic whites and approximately five times that of Hispanics.

For chlamydia and gonorrhea, the age group 20-24 years had the highest morbidity in all races, except in non-Hispanic black females where the highest morbidity was in the age group 15-19 years.

In 2014, gonorrhea, the second ranking sexually transmitted infection, accounted for 22% of all STDs. The same patterns found with chlamydia in term of age and race/ethnicity persist in gonorrhea morbidity, except that the most affected age categories among Hispanics were between 20 and 29 years old instead of 15 and 19 years old, the highest group for non-Hispanic blacks and non-Hispanic whites. Disparity in gonorrhea morbidity within Davidson County has overtaken the national average and wide differences persist among racial, age and gender groups.

*Non-Hispanic blacks were disproportionately represented in each individual STD category and all age groups.*

In 2014, the gonorrhea rate in non-Hispanic blacks was about 13 times the rate in non-Hispanic whites and 9 times the rate in Hispanics even though the rates have decreased in each of these three racial/ethnic groups. Among those in the age group 15-19 years old, the gonorrhea morbidity rate for non-Hispanic black females was 10 times that of non-Hispanic white females locally but more than 12 times nationally.

It was 46 times the rate in Hispanic females in the age category. For those in the age group 20-24 years old, the rate of gonorrhea among non-Hispanic black females was a little over 9 times that of non-Hispanic white females and 6 times that of Hispanic females in Davidson County.

As in gonorrhea, non-Hispanic black men had the highest primary and secondary syphilis morbidity. This was followed by non-Hispanic white men, and then by non-Hispanic black women. The distribution of syphilis is specifically disproportionate among demographic groups and is mostly concentrated in young adult male groups (Chart 3). In 2014, the rate of syphilis at all stages among males was approximately 10 times that of females. Among racial/ethnic groups, non-Hispanic blacks had 3 times the rate of non-Hispanic whites and twice the rate of Hispanics. With regard to early syphilis, the rate among males was 20 times that of females. Also, the rate of early syphilis among non-Hispanic blacks was about twice and a little over two times more than those of Hispanics and non-Hispanic whites respectively.

Chart 3: Rates of Early Syphilis Cases Among Males by Race and Age Group

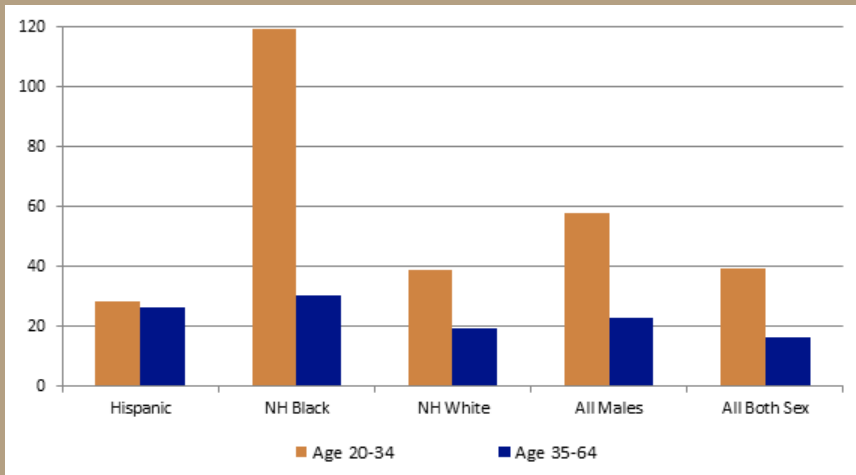


Chart 1: Chlamydia and Gonorrhea Trends in Davidson County, 2010-2014

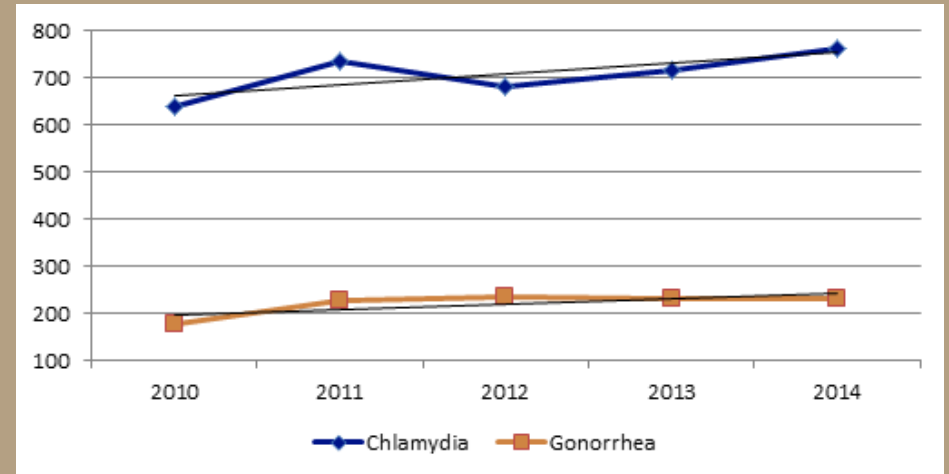
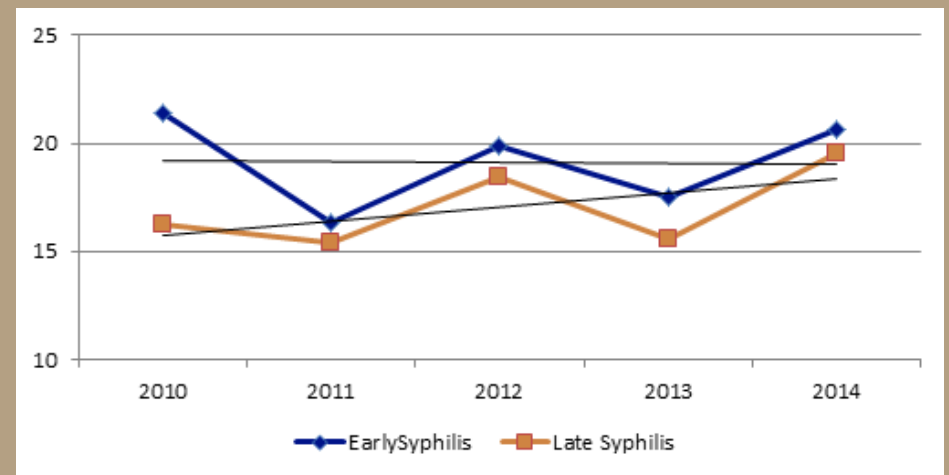


Chart 2: Syphilis Trends in Davidson County, 2010-2014





# mortality

Suicide

Premature Mortality

Unsafe Sleep

# Suicide

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Suicide is the only completely preventable cause of death. In Davidson County in 2013, the most recent available mortality report, suicide was the 9th leading cause of death. There were 91 suicides in Davidson County that year, accounting for 2,826 years of potential life lost (Rogers, Thomas-Trudo, and McKelvey, in press).

Data regarding the demographics of suicide in Davidson County were obtained from the Tennessee Department of Health. Only data on the two predominant racial groups, White and Black, were available. Rates by gender, for Hispanics, or for other ethnic and racial groups were not available.

Generally, nationwide, the White suicide rate is around three times as high as the Black rate (Williams, 1982). The rates in Davidson County follow this pattern; in all but one of the past five years, the White suicide rate was more than three times the Black rate. In 2012, the White rate was 2.92 times the Black rate.

Various explanations have been proposed for this difference. One is the protective effect of oppression. Historically oppressed minorities may have lower life expectations, resulting in less disappointment when goals are not reached. Another possible factor is that the typical multigenerational Black family provides more social support and sense of belonging than the typical White nuclear family (Williams, 1982).

White suicide rates increase with age, while Black rates peak around age 20 and then decline. Reasons proposed for this include a multigenerational family model in minority culture, as opposed to typical nuclear families, that supplies more support in old age. Another possible factor is a tradition of respect for elders in Black (and other minority) culture, while many Whites experience isolation and loss of social status as they age (Williams, 1982).

## *Youth Suicides*

The Black suicide rate has increased nationally for a number of years, and the difference between the Black and White youth suicide rates has decreased. (U.S. Centers for Disease Control and Prevention, 1998). In Davidson County, the Black youth suicide rate has exceeded the White rate in three of the past five years. In two of the past three years, the actual number of Black youth suicides has exceeded the number of Whites, although the majority of the population is White. Moreover, the Black youth rate is trending upward while the rate for White youth is trending downward.

*With regard to suicide, inequity would seem to advantage the minority. However, this advantage seems not to apply to youth.*

One reason proposed for the increasing rate of Black youth suicide was the upward mobility of Black families. It was suggested that as families moved into the middle class, the youth were influenced by a cultural acceptance of suicide as a method of coping with depression and loneliness (Kimmel, n.d.).

A lower Black suicide rate does not mean that suicide prevention is not needed in that population. Suicide rates for Black youth are not lower than for Whites, and are rapidly increasing. Among all ages, while the White and overall suicide rates are steady the Black rate is trending upward.

With regard to suicide, inequity would seem to advantage the minority. However, this advantage seems not to apply to youth. The higher White suicide rate suggests a protective effect of belonging to a minority demographic. The increase in the Black suicide rate, small for total population but marked for youth, indicates that this effect may be decreasing. According to status integration theory, as Blacks enter the middle class, they “inherit the economic, social, and psychological tensions of their White counterparts.” (Kimmel, n.d.) Are there strengths that the minority culture can bring to the majority culture? Are there aspects of minority culture that could benefit the majority culture, to reduce the overall suicide rate? What aspects of majority culture are being emulated by Black youth that cause their suicide rate to rise to the White level? These questions point to a gap in research and an opportunity for mainstream, majority culture to learn from minorities.

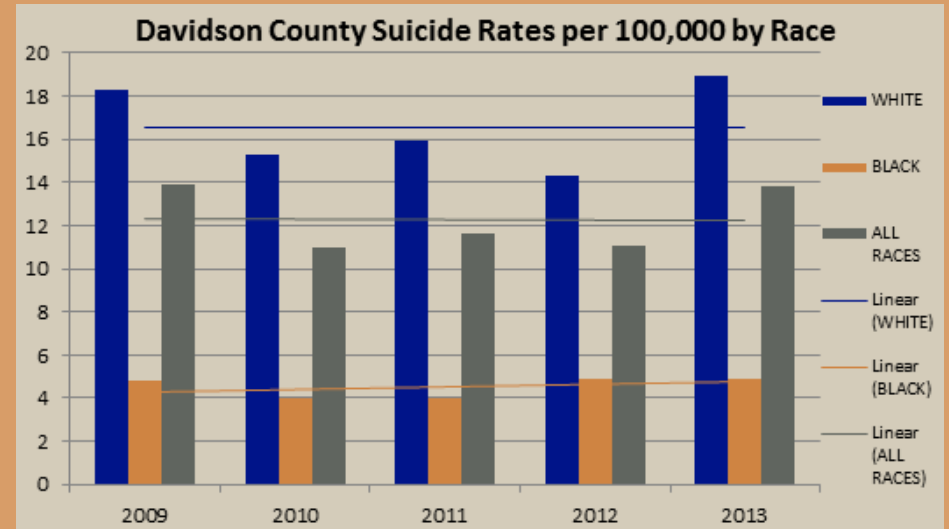
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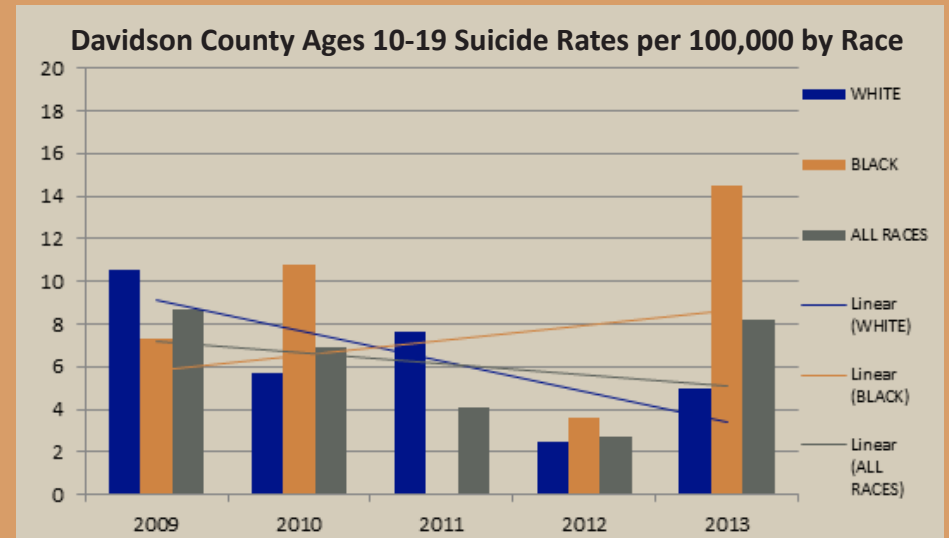
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Source: Tennessee Department of Health Office of Policy, Planning and Assessment Division of Health Statistics



Source: Tennessee Department of Health Office of Policy, Planning and Assessment Division of Health Statistics

# Premature Mortality

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Premature mortality is an important public health and societal concern. This issue has typically been addressed using disease rates which focuses on the underlying disease process and is strongly influenced by older individuals' deaths. This approach does not account for the lost contributions to society that a person will not be able to make. Therefore, this report uses a measure known as Years of Potential Life Lost (YPLL).

YPLL at the individual level is defined simply as the age of someone's death subtracted from a predetermined endpoint. This endpoint may not always be agreed upon, but for this report, the endpoint has been set at 75. Simply stated, if someone dies at age 10, he or she lost 65 years of potential life. This person never entered the workforce and never made his/her unique contribution to our community. Conversely, if someone dies at age 65, he or she in theory, and for the purpose of analysis, has only lost 10 years of potential life. The YPLL for each individual can then be added together based on disease condition, race, sex, etc. Unlike the approach described above, YPLL is greatly impacted by deaths of younger people. This methodology helps define the true burden of premature death on society.

YPLL can be applied to any disease process, but will be limited for this report to Chronic Kidney Disease, Ischemic Heart Disease, and Cervical, Colon, Female Breast, Pancreatic, and Prostate cancers in Davidson County, TN in 2011. To determine which groups of the population are overburdened by a disease, the percentage of the population for a given group will be compared to the percentage of the disease that group represents.

If the population percentage is higher, the group is under burdened and if the population percentage is lower than the disease percentages, that segment of the population is disproportionately burdened.

*This person never entered the workforce and never made his or her unique contributions to our community.*

## *Overall YPLL from Selected Causes*

The seven conditions included in this report resulted in 765 deaths and a total of 5,427.5 YPLL. By sex, only slightly more deaths occurred among females than males. These deaths resulted in 2,772.5 YPLL for men and 2,655 YPLL for women. When the deaths were classified by race/ethnicity, there were 210 non-Hispanic black deaths and 548 non-Hispanic white deaths. These resulted in 2,057.5 and 3,333.5 YPLL respectively. Race/ethnicity was limited to non-Hispanic black and white as there were just two Hispanic deaths due to the diseases of interest.

In 2011, the Davidson County population was 48.4% male and 51.6% female. Given this distribution, males are disproportionately represented in the YPLL calculations for the diseases of focus. Similarly, the general population was 27.6% non-Hispanic black and 57.2% non-Hispanic white. This translates into both non-Hispanic blacks and non-Hispanic whites contributing more YPLL than we would expect. This means that small minority racial/ethnic groups are not contributing as many YPLL from the diseases under investigation here as would be expected.

When sex is combined with race/ethnicity, the Davison County populations can be described as 12.8% non-Hispanic black males, 14.8% non-Hispanic black females, 27.7% non-Hispanic white males, and 29.6% non-Hispanic white females yet these same groups represent 18.6%, 19.3%, 32.4% and 29% of the total YPLL respectively for the selected causes. This means that only non-Hispanic white females are under-represented in the YPLL analysis by the smallest of margins (0.6%).

### Years of Potential Life Lost for Selected Disease, Davidson County, TN 2011

Disease	Total	Male	Female	Non-Hispanic Black	Non-Hispanic White	Non-Hispanic Black Male	Non-Hispanic Black Female	Non-Hispanic White Male	Non-Hispanic White Female
<b>Ischemic Heart Disease</b>	2838	1914	924	776	2056.5	570	206	1338.5	718
<b>Pancreatic Cancer</b>	603	307.5	295.5	315.5	282	160.5	155	147	135
<b>Colon Cancer</b>	462.5	222.5	240	206	231	66.5	139.5	156	75
<b>Female Breast Cancer</b>	813	na	813	257	556	na	257	na	556
<b>Prostate Cancer</b>	194.5	194.5	na	109.5	85	109.5	na	85	na
<b>Chronic Kidney Disease</b>	343.5	134	209.5	261.5	82	103	158.5	31	51
<b>Cervical Cancer</b>	173	na	173	132	41	na	132	na	41
<b>Overall</b>	<b>5427.5</b>	<b>2772.5</b>	<b>2655</b>	<b>2057.5</b>	<b>3333.5</b>	<b>1009.5</b>	<b>1048</b>	<b>1757.5</b>	<b>1576</b>



### *Disease-Specific YPLL*

Ischemic heart disease was responsible for a total of 2,838 YPLL to Davidson County residents in 2011. Investigation by sex shows that males were disproportionately impacted. Racially, non-Hispanic whites bear a disproportionate burden while the percentages of cases seen among non-Hispanic blacks was approximately what would be expected. The sex influence remains consistent when looking at sex and race/ethnicity together as both non-Hispanic black males and non-Hispanic white males were disproportionately impacted compared to their female counterparts.

Breast cancer deaths among females resulted in 813 YPLL to residents of Davidson County in 2011. As the percentages of the YPLL due to breast cancer for both non-Hispanic black and non-Hispanic white females are higher than their respective percentages of the female population, it can be understood as other racial/ethnic groups being under-represented in these 813 YPLL. Non-Hispanic black females accounted for about 2.1 times the number of YPLL as might be expected based on population proportions, while non-Hispanic white women accounted for about 2.3 times the YPLL as might be expected.

A total of 603 YPLL were attributed to pancreatic cancer among Davidson County residents in 2011. While the distribution of the YPLL by sex was extremely close, males did account for a larger percent of the YPLL than they did of the entire population.

By race, non-Hispanic blacks were disproportionately represented in the YPLL compared to non-Hispanic whites. Similarly, when sex was combined with race/ethnicity, non-Hispanic black males and females accounted for a larger percentage of the YPLL than they did of the population.

462.5 YPLL were due to colon cancer among Davidson County residents in 2011. By sex alone, the investigation revealed that the YPLL by males and females was distributed in a close approximation to the distribution of the general population by sex. By race, non-Hispanic blacks represented a larger than expected percentage of the YPLL. This disparity remained true when looking at sex, race/ethnicity for non-Hispanic black males and females. Among non-Hispanic white residents, males were over represented in the YPLL calculation while females were underrepresented.

Chronic Kidney Disease was responsible for 343.5 YPLL to Davidson County residents in 2011. Compared to their respective percentages within the general population, females, non-Hispanic blacks, and both non-Hispanic black males and non-Hispanic black females are disproportionately over represented in the total YPLL for this disease.

Males lost 194.5 years of potential life in 2011 to Prostate Cancer. While non-Hispanic black males comprised just over a quarter (26.5%) of the males population in Davidson County, they accounted for 56.3% of the YPLL to this disease. Conversely, non-Hispanic white males represented 57.1% of the male population and only accounted for 43.7% of the YPLL. Therefore, non-Hispanic black males are overrepresented in this disease.

Cervical Cancer was responsible for 173 YPLL among Davidson County residents in 2011. In the general female population, non-Hispanic black women represented 28.7% while non-Hispanic white women represented 57.4%. Despite this distribution, over three-quarters (76.3%) of the YPLL were among non-Hispanic black females and just 23.7% were among non-Hispanic white females.

# Safe Sleep

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In Davidson County from 2009 through 2013, 73 infants died as a result of being placed to sleep in an unsafe sleeping environment, which is 25.3% of all infant deaths. The burden of mortality is not distributed evenly. Of these 73 deaths, 61.6% were non-Hispanic black (NHB) compared to 31.2% non-Hispanic whites (NHW). Non-Hispanic black infants are nearly twice as likely to die in a sleep-related incident as a non-Hispanic white infant.

These figures are tragic because most of these deaths are preventable. Educating and encouraging parents and caregivers to adopt a simple set of safe sleep practices can save lives and ensure more babies live to see their first birthday. For this reason, both the Tennessee Department of Health and the Metro Public Health Department (MPHD) strongly advocate all parents and infant caregivers learn the ABC's of safe sleep. The safest place for an infant to sleep is Alone, on her Back, and in a Crib.

## *Alone*

The American Academy of Pediatrics (AAP) (2011) recommends that all infants sleep in the same room, but not on the same surface as other people. An infant in the same bed with sleeping children or adults is at greater risk of being rolled-over on and suffocated than an infant sleeping by herself. That risk increases considerably if the adult is impaired by drugs or alcohol. Data from the Tennessee Pregnancy Risk Assessment and Monitoring System (PRAMS) indicates that across the state 44.8% of mothers often, always, or sometimes shared a bed with their infant (67.5% NHB; 38% NHW). In Davidson County, 65.8% of infants that died in a sleep-related incident were co-sleeping (76.3% NHB; 73.6% NHW).

## *Back*

The AAP recommends that all infants be placed on their backs for every sleep session until 1 year of age. PRAMS data for Tennessee indicates that almost one-third of women (31.6%) put their babies to sleep in a position other than the back, and that non-Hispanic black women were least likely to use the back position for their infants (49.8% NHB; 26.3% NHW). Among the infants that died in Davidson County from 2009 through 2013, over half (52.1%) were put to sleep in a position other than on their back (64.5% NHB; 66.7% NHW).

*The burden of mortality is not distributed evenly. Non-Hispanic black infants are nearly twice as likely to die in a sleep-related incident as a non-Hispanic white infant.*

## *Crib*

It is also recommended that infants sleep in a crib with a firm mattress. The crib should be free of loose bedding, toys, bumper pads, pillows, and anything else which has the potential of blocking the infant's airway. Between 2009 and 2013, 84.9% of infants that died in a sleep-related incident were not sleeping in a crib or bassinette (84.1% NHB; 87% NHW). In nearly 62% of cases, there was a crib in the home at the time of death (86.1% NHB; 76.5% NHW). Additionally, 27.4% of infants were placed to sleep on unsafe bedding or with toys (race/ethnicity and PRAMS data not available).

**Factors Involved in Sleep-Related Deaths**  
Davidson County and Tennessee, 2009 - 2013

Factor	Davidson County		Tennessee	
	Number	Percent	Number	Percent
<b>Total Deaths Reviewed</b>	73		658	
<b>Not in a crib or bassinette</b>	62	84.9	509	77.4
<b>Not sleeping on back</b>	38	52.1	345	52.4
<b>Sleeping on unsafe bedding or with toys</b>	20	27.4	301	45.8
<b>Sleeping with other people</b>	48	65.8	375	57.0

MPHD provides training on safe sleep practices to a wide-range of audiences including first responders, expectant parents and extended family caregivers, multigenerational caregivers, and daycare providers.

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# conclusion

This report is intended to begin and inform discussions around health equity in the Nashville community.

As these discussions proceed there are important questions to consider, including:

What are the health equity issues in our community?

What conditions within our community produce health inequities?

What groups, organizations, and sectors are (or should be) engaged in addressing issues of health equity?

What are our goals for moving toward health equity?

How can we measure health equity and monitor changes over time?

The topics presented in this report represent only a few of the health equity issues in our community. As proposed by the Social-Ecological Model of Health, we must examine disparities in health outcomes as well as those conditions in our community (and beyond) that create or encourage those disparities. As evidenced by this report, numerous groups and organizations outside of the health sector are engaged in addressing health-related disparities.

## Monitoring Health Equity

An important step in moving toward health equity is monitoring. Monitoring is a type of research that involves repeatedly looking at a question or condition over time. This process allows for an ongoing collection of data to determine how well a policy or program is working so that changes can be made where necessary. So, monitoring is action-oriented and allows for informed decision-making in the short-term. A monitoring system should be simple, affordable, sustainable, timely, and relevant for policy. Braveman proposes an 8-step monitoring system that meets these criteria:

### Eight steps in policy-oriented monitoring of equity in health and its determinants (Braveman, 2003)

- Step 1:** Identify the social groups of a priori concern. In addition to reviewing the literature, consult representatives of all social sectors and civil society, including advocates for disadvantaged groups.
  - Step 2:** Identify general concerns and information needs relating to equity in health and its determinants. Again, in addition to the literature, consult representatives of all social sectors and civil society, including advocates for disadvantaged groups.
  - Step 3:** Identify sources of information on the groups and issues of concern. Consider both qualitative and quantitative information.
  - Step 4:** Identify indicators of (a) health status, (b) major determinants of health status apart from health care, and (c) healthcare (financing, resource allocation, utilization, and quality) that are particularly suitable for assessing gaps between more and less-advantaged social groups.
  - Step 5:** Describe current patterns of avoidable social inequalities in health and its determinants.
  - Step 6:** Describe trends in those patterns over time.
  - Step 7:** Generate an inclusive and public process of considering the policy implications of the patterns and trends. Include all the appropriate participants in this process (e.g. all relevant sectors, civil society, NGOs).
  - Step 8:** Develop and set in motion a strategic plan for implementation, monitoring, and research, considering political and technical obstacles, and including the full range of appropriate stakeholders in the planning process.
- Repeat** the entire process from the beginning, incorporating new knowledge and awareness.

## Recommendations for Action

Moving forward, recommendations for action on health equity issues will be developed during the 2015 Health Equity Summit, an event open to the public and hosted by the Metro Nashville Public Health Department.

The summit will focus specifically on health equity, and using this report as a guide will include small group discussions focused on developing recommendations for moving toward health equity in Nashville. This process for developing recommendations is community-based, and utilizes the range of expertise and perspectives among summit attendees. This approach also acknowledges that health equity goals and strategies are not the exclusive domain of public health. The recommendations developed during the summit will be compiled and publicly-available as a supplementary report.

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# 2015 health equity report

Metro Nashville-Davidson County